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Therapeutic Gazette.

Whole Series, Vol. VIII. | Detroit, Nov., 15, 1884. | New Series, Vol. V. No. 11.

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Original Department.

Disinfection.

By C. W. Tangeman, M. D.,* Cincinnati, O.

An exact knowledge of the mode of action of disinfectants has possibly not yet been definitely determined. There are few physicians who do not at some time employ remedies for the purpose of disinfection. It may have been of their hands and clothing, after attending a case of small-pox: the stools of a typhoid fever patient; the sick-room during and after sickness; the disinfection of ships during quarantine; but the number is certainly quite limited who know how, if at all, the agent acts, or in what manner it produces its action. This conclusion need not awaken surprise, since the substance or the something causing infection, is so different in the various diseases and has been studied so little. It has only been quite recently that the theory has been advanced that the infectious material is an organized substance, and should this theory be accepted, the probabilities are that the physical properties of the organisms are so different that one agent would not act as a disinfectant in all diseases. Consequently if a remedy should be investigated accurately, observations with it would necessarily have to extend over all the various infectious material in which it was intended to be used. If, for example, carbolic acid is used for disinfecting rooms (as is customary in this country during epidemics), it would have to be employed in sick rooms of typhus fever, pest, scarlet fever, diphtheria, etc., and then we must come to a conclusion as to the condition of the poison. If by accident, a patient should be quartered in the

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rooms thus treated and not become affected, little or nothing would yet be proven. The only manner in which these experiments can be carried out successfully is to employ animals as reagents and thereby determine the efficiency of the agent. All authorities on the subject of disinfection view it from the standpoint that the infectious material has the greatest similarity with ferments, and might, without hesitation be employed as a surrogate to test the value of the various disinfectants. The only objection that can be urged against these theories that not only organized, but also unorganized ferments should receive attention. What we are to expect of disinfectants we can discuss later; the first point of interest must be what agent should be employed, and second, what is the best method of application. It is quite plain and easily understood that clothing, wearing apparel, and bedding is more easily disinfected than large solidly compressed bales of goods. The sick-room in all probability can be disinfected with ah agent that is not at all applicable for the purifying of railroad trains and vessels. In keeping these points in view experimenters have found that different agents are best suited for different purposes. The present status of this subject is pointing in the direction that the pathogenetic micro organisms of many diseases are bacilli. For example "Milzbrand and rauschbrand," the lepra bacillus and erysipelas, the bacillus of typhus and those found in mice and rabbits, are artificially produced septicæmia, and while undoubtedly there are still many diseases where the pathogeny will be found in a specific bacillus, we must not forget that this plan of investigating diseases is yet in its infancy. The value of an agent as a disinfectant will therefore, be measured by its efficiency in destroying these micro-organisms. A great many bacilli give off sporules and germs that become encapsulated and lie dormant, until they find a suitable soil for their development. In the form of sporules they possess a wonderful tenacity. They may be exposed to a temperature of boiling or freezing water, and when subsequently placed under suitable surroundings they will develop into the original bacilli. The requirements of agents that are recommended as disinfectants are many. They must have the property of not only delaying the process of development of the bacillus, but also of killing the sporules. They must remain active even in a dilute condition; must not lose their properties by age; must be in such a condition that they can be applied to the living tissue without causing pain or permanent injury. The time required for an agent to act is also an important factor.

To make all these observations with a single agent requires a great deal of time, but to go through the whole list of them required years of observation, the result of what we will study as it is given us by Koch and Wolfhügel. In diseases where the infection material is preserved in a dry state for a long time, but shows its activity when by chance it falls on a good soil, as in small pox, pest, cholera, etc., where the disease may be carried many miles, and for months, the poison is carried in the form of sporules, encapsulated, in which condition they resist the action of the agents formerly recommended as disinfectants. Since the discovery of the bacillus tuberculosis by Koch many observers have been diligently pushing investigations based on the same principle with marked success. In surgery possibly many of the ideas of Joseph Lister were carried out, who thought that "not the air, but something in the air," coming in contact with an abraded surface caused decomposition, or rather suppuration. At first Lister's dogmatic forms and rules were adhered to very rigidly, but the investigations that were made subsequently showed that the principle of antiseptic surgery was to prevent every possible infection, the use of the most scrupulous cleanliness, and proper drainage. The triumphs of modern surgery, which are truly astonishing, are not due to placing a certain amount of protection around the wound, the use of six to eight layers of gauze, or the employment of the carbolic spray apparatus, but the application of the proper antiseptic principles, largely as has been laid down for us by the investigations of experimenters in the laboratory. It is quite difficult to convince many physicians that decomposition of organic material is due to the action or presence of minute particles floating in the air. Though this idea has become quite prevalent among surgeons of Europe, many American surgeons still hesitate to accept it.

Formerly asepsis, or the absolute exclusion of germs was aimed at, and since that failed the cause was attributed to germs found in the tissues; but sound healthy tissue has a tendency to hinder the developement of micro-organisms, and where an efficient antiseptic dressing has been applied to a wound there cannot be a developement of bacteria. Neelson, of Rostock, has been making an effort to show that septic infection of wounds, clinically and pathologically, is the same when compared.

The mycoses artificially produced by Koch, Pasteur, and Gaffky, by setting up a wound infection, such as the septicæmia of mice and rabbits, must be excluded from infectious wound diseases, since they are not observed in man. The mycoses produced in man by impurities and filth floating in the air, if not at present already proven to be specific, like in erysipelas, according to the experiments of Fehleisen, consists of a combination of three processes, putrid intoxication, the inflammation of the parts where inoculation was made, and a production of bacteria in the blood. These three processes furnish the clinical picture of septicæmia. We are best informed on the subject of putrid infection through the labors of Bergmann, Panum and others who have shown that the cause of decomposition does not alone produce symptoms of fever, vomiting, somnolence, diarrhœa, but the chemical product taken in combination. The typical picture of septicæmia produced by the above three processes can be changed by the lymph and blood-vessels carrying the product to distant parts of the body, and there producing a septic inflammation. The difference between the infection produced experimentally and the infection as described above, consists mainly in the production of micro-organisms in immense numbers in the blood, and the accompanying symptoms; while the change found in the tissues of distant organs are only those of inflammation. In the latter we have metastatic inflammation, appearing altogether like pyæmia. This shows that we may have a septicæmia complicated by pyæmia.

It is not our intention to recount all the various attempts at disinfection or to criticise the numerous methods that have been practiced. We

have recently found that the removal of decomposition and the immobility of the bacteria are not sufficient proof that they are in reality dead, since experimenters demonstrate quite readily that when they are transferable to proper soil the bacteria again show signs of life. Here the difficulties begin; to determine absolutely whether the bacteria are capable of farther development after they have been treated with a certain disinfectant and at the same time exclude all possibility of mistake. Some experimenters employed a fluid that decomposed rapidly, and portions of it then subjected to the action of the agent, or substances were impregnated with the fluid containing bacteria and then treated in the same manner, then conveyed to a culture soil sterilized and protected against the entrance of impurities. In most instances the experimenter was satisfied when the culture material remained clear or became turbid, the former meaning that the bacilli were all dead, while when the fluid became changed in appearance it signified that the agent employed in the test was not efficient.

This procedure is open to serious objection, since it is not known what kind of bacteria you are experimenting with, what kind, if any, have been destroyed. Another objection is that the fluid may already contain bacteria giving off sporules, and just this one uncertainty may give rise to many errors. In our experiment where there are no sporules the agent is efficient, and on the other hand where sporules are present, the same drug is absolutely inert.

Experimenting under these obstacles we cannot lay down any definite principles of disinfection. The introduction of a new remedy called a disinfectant and used for that purpose does not indicate an advance in medicine until the remedy has undergone the tests experimentally, as well as clinically, and not only the tests described above, but tests according to Koch, the only absolute means of determining the value of disinfectants. K. always experiments with a specific bacillus by preference, so that it may be easily recognized even when mixed up with others. This care excludes many of the objections to the former process. Instead of employing a fluid for the culture of bacteria a solid cultivation soil was employed (cooked potatoes or blood serum gelatin). With these precautions, and the selection of bacteria that do not contain "Dauer sporen" that are so characteristic that they cannot be mistaken for anything else, the result must necessarily be of some value.

To prove the action of disinfectants on pathogenetic bacteria, "Milzbrand sporules" were chosen. If we take up the remedy most frequently used, and for which is claimed the most active properties, and subject it to a test that must be accepted by all observers as conclusive and accurate, we will find it to yield results that will astonish every one. Dilute carbolic acid ranging in strength from 1 to 5 per-cent., was placed in small vessels that could be closed air-tight with a glass slide. In order to give this disinfectant every possible chance, thin threads of silk were placed in a fluid containing the milzbrand bacillus, and when they became saturated they were removed, dried and finally washed to remove all impurities that might act as a source of error. The threads to which the sporules clung were now transferred to the acid solution and allowed to remain for a length of time that seemed sufficiently long to the experimenter. He made examinations hourly to determine whether the bacilli were still capable of living when transferred to culture material, which was made of blood serum gelatin, arranged in small glass discs so that the growth could be watched and examined microscopically. Great was the astonishment when the trials with a 2-per-cent. solution of carbolic acid, which was firmly believed to be strong enough to destroy all germ life, was found to be without any action on milzbrand sporules during the course of twenty-four hours. Surgeons were accustomed to consider a 2-per-cent. solution of carbolic acid as an infallible remedy to destroy all infectious material; they washed their hands and instruments in this solution, and considered the patient free from all danger of infection. But according to experiments, any of the recent sporules are not affected in the least by a 2-per-cent. solution of carbolic acid. The experiments were carried still farther. A 2-per-cent. solution in the course of four, five or seven days, caused only a tardiness of growth, but not a prevention of development. A 3- and 4-per-cent. solution did not even possess the power to destroy the germs. A 5-per-cent solution only retarded the growth a very little during the first day, and in some instances single bacilli developed even on the second day. Disinfectants to be of practical value must act rapidly in order that they may not be weakened by age, since many of the agents are volatile or suffer in strength on account of dilution. But according to the above experiments a 5-per-cent. solution in large quantities, remaining in contact with the object for disinfection during 24 hours, is not sufficiently long to destroy all the germs. Absorption or chemical changes cannot be brought up as an argument, since the threads were so small compared with the quantity of fluid, as not to produce any appreciable weakening effect. Were we to make an attempt to disinfect fluids that are complicated, causing a weakening of the agent, or where the object can only be brought in contact for a short time with the carbolic acid, we can safely say a 10-per-cent. solution would be required to be efficient. Many objections would arise, such as the cost of the drug and its disturbing powers. The value of carbolic acid in arresting decomposition must next be investigated, when the germs were in a suitable soil for development. A number of vessels were employed, the first containing one drop of a 2-per-cent. solution of carbolic acid; the second, two drops; the third, four drops; the fourth, six drops; the fifth, eight drops; the sixth, ten drops; the seventh, fifteen drops. To these was added ten c. c. m. of blood serum. Silk threads containing thoroughly dried milzbrand bacilli were now put into these vessels and then placed under a large bell jar containing moist air, to prevent evaporation. One vessel had also been prepared containing pure blood serum. In this the bacilli could be seen developing in large numbers in the course of 24 hours, likewise in the vessels containing one, two, four and six drops of the acid solution. In the one with eight drops the development was slow, and the growth slender. In the vessels containing ten and fifteen drops, no change could be seen. After the expiration of three days the threads of the last two vessels were removed a

culture material, and in due time an extensive milzbrand vegetation was developed.

Thus far we have only treated of the action of carbolic acid in a watery solution. We must next mention its use in a spray form, since it has been so extensively employed by many surgeons in this manner. It being necessary that a 5-per-cent. solution remain in contact with the object for many hours in order to be of any service, it would hardly be reasonable to suppose that in the form of a spray its disinfectant properties would amount to very much, since it is so very volatile. Schotte and Galthner have determined that 15 g. of carbolic acid to the cubic meter are required to disinfect a dry object impregnated with decomposition bacteria. Thus on account of the impossibility of converting so large an amount into steam would show at once how utterly impracticable it would be to disinfect rooms by the use of carbolic acid.

Since the use of ordinary disinfectants has become somewhat doubtful, heat has been resorted to as one of the remedies, and especially dry heat, upon which reliance could be placed. In fact, in many of the observations recently made, heat was one of the few agents that absolutely killed all germs of organic life. Under ordinary circumstances bacilli are very sensitive to the action of disinfectants, but when they once contain sporules, or a sort of propogative germ, they suddenly become very resistant to all physical and chemical influences. The result with hot air as determined with an apparatus constructed especially for that purpose, is briefly as follows :

1. The ordinary bacteria are killed by a temperature of 100° C. in the course of one and one-half hours.

2. The sporules of milzbrand require a temperature of 140° C., for a time of one and one-half hours in order to render them inert.

3. Bacilli sporules require a temperature of 140° C. for three hours, to kill them.

4. Objects exposed to hot air are so slowly heated that a small bundle of clothes, for example, or a pillow is not disinfected in the course of three or four hours, with a thermometer indicating a temperature of 140° C.

5. Most objects when exposed to such a high temperature for three hours are more or less injured. Steam has also been employed for disinfecting purposes, since it was clearly demonstrated that hot air for disinfecting purposes would never come into general use, because the time that it required was generally sufficient to destroy the object disinfected. Some of the results with steam were quite good experimentally, but practically the method is too circumstantial to be carried out.

The objects for disinfection were always placed in the same vessel where the steam was generated, above the water, and then it required a temperature of 120° C. continued for one and a half hours, to be effectual, showing that the practical benefit to be derived from hot air or steam is not likely to be found of much service to the physician. In nearly all experiments the milz-brand bacillus was used, but there are other bacteria still more resistant, the germs of which are to be found floating in the air, as was accidently discovered during a series of experiments with carbolic acid. It was found that one grain of carbolic acid was sufficient to prevent the development of milz-brand bacillus in 850 c. c. m. of fluid, but on opening the vessel germs from the atmosphere accidentally entered and began to vegetate, showing that the germs of the atmosphere were very resistant, more so than those employed in these tests. Carbolic acid is, beyond a doubt, employed more or less freely by every physician, and everywhere it is put down as the queen of remedies; therefore it was first investigated, and the results are of such extreme interest that they will bear the most careful investigation by all observers. When a surgeon had washed his hands in a two- or three-per-cent solution of carbolic acid he felt an inward satisfaction of having done all that was really necessary, or in hispower to do, for his patient, and now he finds he, in reality, did nothing but amuse his patient or put a bad odor into the sick-room. Carbolic acid in oil or alcohol does not show the least signs of disinfectant properties; not only do sporules, which we know to be very resistant, defy its action in this state, but also the very sensitive bacillus may live for months in a five-per-cent solution of carbolic acid in oil. Does the oil act as a protective? since in the form of steam it is much more efficient. Catgut ligatures preserved in carbolized oil are not aseptic. It is strange that surgeons using this preparation daily in their practice had not observed this fact long ago; only one instance has been recorded by Volkmann, where he operated on two females (removal of the mammary glands), and employed catgut sutures to bring the edges of the wound together. In the first case the wound in the region of the suture sloughed extensively, involving the cellular and muscular tissue; the patient finally made a good recovery. In the second case a pustule developed, and a typical milzbrand ulcer put in its appearance, causing the death of the patient. It is generally known that catgut ligatures are manufactured from sheep-gut, and evidently the gut of a sheep affected with this disease had accidently been taken for that purpose. The process of manufacture and the final preservation in the antiseptic fluid (?) for months failed to kill the milzbrand sporules contained in the gut, and finally when they happened to fall on a soil where they could grow they caused the death of the patient. The ligatures were taken out of the same bottle. This only explains why Lister so often found bacteria under his so called antiseptic dressing, which had been put on with the most scrupulous care. We do not find it necessary to try and manufacture bacteria "de novo" out of white blood-corpuscles, albuminoids etc. If they are found in a wound at all, they certainly came through the natural way. Where an antiseptic had been employed and suppuration occurred, we can rest assured that the agent was not powerful enough to destroy the germs.

To prevent the multiplication of bacteria permanently in the fluids, it requires 1:400 parts of carbolic acid. The comparative test of a number of agents, clinically and in the laboratory, will show that in nearly all instances we can rely on the results of the experiments as he worked them out in the laboratory.

The following will show the value of some of the more prominent agents on silk threads containing milzbrand sporules; they were all treated in the same manner: Distilled water after 90 days showed no signs of action on the micro-organisms. Absolute alcohol after 110 days had no more effect than any bland agent. Ether in the course of 30 days had the effect to destroy the growths. Chloroform had

no effect whatever on the germs after being immersed in the liquid for 100 days. Oil of turpentine after 24 hours had a tendency to stunt the growth, and absolutely arrest the development in five days. The following substances were dissolved in water: Chloroform proved efficient on the first day, likewise a two-per-cent. solution of bromine. A concentrated solution of chloride of sodium had no effect whatever, while a five-per-cent. solution of chloride of iron showed some action on the sixth day. Bromide and iodide of potash in a five-per-cent. solution were inert: Arsenic, sulphuric acid and chromic acid had a tendency to arrest the development somewhat. Chloride of lime in a five-per-cent. solution, and iodine in a one-per-cent. solution in alcohol, showed signs of action on the first day: Corrosive sublimate in a one-per-cent. solution, permanganate of potash in a five-per-cent. solution, osmic acid in a one-per-cent. solution and bromine in a two-per-cent solution absolutely killed the sporules during the first 24 hours of exposure. Boracic acid in a five-per-cent solution was quite tardy in its action until after a few days. Salicylic acid and thymol showed no effect at all in a five-per-cent. solution. It had been claimed that glycerine and alcohol could not be employed for the treatment of formed or unformed ferments since it would destroy the former, but germs found in a solution of water with glycerine or alcohol in parts of 1:1 or 1:2 for four months did not affect their development. According to the above experiments many physicians are robbed on an antiseptic remedy; they are unwilling to accept a new theory, for it is a bitter pill to thus to acknowledge the mistakes of the past.

It is generally supposed by the laity that disinfectants must necessarily possess a strong odor, in order to be efficient. Observations with disinfectants at the present time need, in realty, be only made with chlorine, bromine, iodine, sublimate, osmic acid and permanganate of potash; unless new methods of applications are found, the number is small, but they are very efficient. A given agent may not be applicable in every instance. As a disinfectant, therefore, it will require further experiment and investigation to determine under what circumstances certain drugs are most efficient. The rapidity with which an agent acts, other qualities being present, will largely determine its value in surgery. Iodine began to delay the development of bacilli in a dilution of 1:5000; bromine 1:1500; chlorine and osmic acid were found to be efficient in about the same dilution. Permanganate of potash at 1:3000 began to retard the development, but in a strength of 1:1400 it destroyed life. Corrosive sublimate 1:000,000 retarded the growth of bacilli, and in a dilution of 1:300,000 it absolutely destroyed all bacilli. Therefore we are compelled to accept that corrosive sublimate as the most applicable and efficient disinfectant. Whether it has retained these qualities and demonstrated in practice that it is efficient, we will have to learn from the current literature on the subject. Watson Cheyne, on the principles and practice of antiseptic surgery, gives a complete history of decomposition and fermentation, and finally says that decomposition of organic substances is caused by fine particles floating in the air and appearing like dust. C. places great stress on the minutiæ and detail of Lister's theory, but the object to be obtained is asepsis. If to accomplish this in a wound it is not necessary to employ the spray apparatus, no one is compelled to use it. In the above experiments it was pretty plainly proven that any of the agents in spray form that have been recommended, are not very efficient. In the latter part of C.'s work he makes a comparison between the results of antiseptic surgery and any of the other methods. Heydenreich, of Moskau, says, let the result of antiseptic surgery speak for itself, and it is sufficient to convince the most skeptical. It is nothing more than the pedantic observation of absolute cleanliness, not of the wound alone, but everything coming in contact with the wound, from the operation table to the instruments employed, which should be constructed according to antiseptic principles. Cutting instruments are made of metal entirely, forceps without serrations, catches, or slides, in order not to leave even the slightest roughness for the retention of filth.

While many surgeons are employing agents as disinfectants that we know, according to experiment, are not so efficient as others, they still report good results; but as soon as they become convinced of the value of antiseptics in surgery, they will necessarily, sooner or later, part with their individual fancies, and yield to the more reasonable. Is it to be wondered at that many physicians through out the country apparently resist antiseptic methods in surgery, when professors of medical colleges, who have every opportunity and reason to be informed on a subject of so much importance and accepted by the surgical world in general, still claim and teach that suppuration is a necessity, in reality only a reparative process, consequently cannot be dispensed with? "Surgical fever cannot be prevented." But it is clearly proven that surgical fever and septic fever are not different processes, but are only greater or less degrees of the same process. It is also generally recognized that the dangerous forms of inflammation of wounds are excited by those tissue changes in the blood, or in the inflammatory products which are brought about by the entrance of agents of putrefaction from the outside, and that surgical fever depends upon the absorption of those products, and can be prevented. Traumatic fever was formerly held to be due to or dependent on nervous irritation, while pyæmia was always an additional disease, miasmatic and contagious. To-day but a few old fogies cling to this theory, and the majority have accepted the true pathogeny of the disease. Billroth employs a combined iodoform and carbolic gauze dressing. The former agent, introduced by Mosctig, has many opponents since so many cases have been reported where toxic symptoms were set up by its use, but B.'s success with the remedy need not be criticized here. Heydenreich employs corrosive sublimate with satisfactory results. Many surgeons of Europe prefer the latter agent as a dressing. It is safe, pleasant, cheap, easily applied, and is not so often followed by traumatic erysipelas. Max Schede, of Hamburg, controls, possibly, the largest surgical clinic in the world. The operation room of the hospital is quite small, but arranged practically. Prior to every operation the sublimate steam spray is put in operation for some time to disinfect the atmosphere of the room. After the operation the room is flooded with enormous quantities of water, so that assistants and operator must wear rubber boots. The wound during the operation is continuously irri-

gated with a solution of sublimate, 1:1000. The dressing is exclusively sublimate, and applied in the following manner: After the edges of the wound have been united by sutures, a layer of glass wool, which is kept in a 10‰ solution of sublimate, is placed over the wound. Over the top of this, which acts as means of drainage, small pillows of peat moss, that have been moistened with the sublimate solution, are tied, by means of sublimate gauze, over the glass wool. This dressing is not removed until the wound is healed, or the discharge shows through the pillows, when it may be changed. The results are simply astonishing. A suppuration process is a rarity, and though antiseptic surgery is in its infancy, Schede has achieved results that are astonishing, out of the immense number of operations performed annually. In 1883 there were only two or three suppuration processes developed in the hospital after an operation. Nine hip-joint resections made about the same time on children, recovered without any reaction whatever, proving that whenever a surgeon has suppuration following an operation he is at fault himself. Corrosive sublimate has been recommended for permanent irrigation in wounds that cannot be brought together, as in extensive bruises and destruction of the cutaneous structures. Gynæcologists are employing it with the most perfect satisfaction.

The following is a table that we will append, taken from the Pharmaceutische Post, by Miguel, that may be of interest to some, and it will serve as a comparison of the value of some of the agents used as disinfectants. The table is the result of a series of experiments made by the author with different drugs having antiseptic properties. His data will undoubtedly astonish many of the staunch adherents of carbolic acid. The figures represent the weight in grammes that were required of the drug to prevent decomposition of one liter of neutralized chicken roth:

	GRAMMES.
Mercuric iodide	0.025
Silver iodide	0.030
Hydrogen hyperoxide	0.050
Mercuric chloride	0.070
Silver nitrate	0.080
Osmic acid	0.15
Chromic acid	0.20
Chlorine	0.25
Iodine	0.25
Gold chloride	0.25
Platinum chloride	0.30
Bromine	0.60
Iodoform	0.60
Bromoform	0.70
Copper chloride	0.70
Chloroform	0.80
Copper sulphate	0.90
Salicylic acid	1.00
Benzoic acid	1.10
Cyanide potash	1.20
Picric acid	1.30
Ammonium chloride	1.40
Zinc chloride	1.90
Thymol	2.00
Sulphur	2.00
Saltpeter	2.00
Chloride sodium	3.00
Carbolic acid	3.00
Arsenious acid	6.00
Boracic acid	7.00
Methyl alcohol	95.00

Naphthol, when free from phenol, has no antiseptic properties at all.

Constipation and Its Treatment.*

By Professor Charles Lasègue, Paris, France.

AMONG the symptoms which present themselves every day to the observation of the physician, constipation unquestionably occupies the first place. We should, then, naturally have expected that this morbid state would have been the subject of innumerable treatises; it is, however, a curious fact, and worthy of note, that the literature of constipation is very meagre, and besides the little book of Burns, published in 1840, and that of Birch, which is of more recent date, I hardly know of any special work on the subject. Nevertheless, apart from its value as a diagnostic sign, constipation has a singular interest by itself, and the various modes and degrees of its manifestation, its relations with alimentation, are questions sufficiently difficult of solution to claim the attentive consideration of the physician.

It is hardly correct to assert that constipation is characterized by infrequency of the alvine evacuations. The normal condition of some individuals is not to have more than one stool every three days, and you have no right to say that such persons are constipated. We call that kind of constipation *horary* (*hora* an hour), which is characterized by omission of the customary evacuation at the stated hour. When then, you suspect the existence of horary constipation, interrogate the patient respecting his previous habits. When you shall have ascertained the law of periodicity of the alvine evacuations at ordinary times, you are prepared to judge if constipation be present now.

There is also another kind of constipation, which I call *quantitative*, and which presents itself under the appearance of *perfect horary regularity*. The patient has every day a stool at the usual hour, but he passes a quantity of fæcal matter, which has no proportional relation to the stock which his intestinal magazine holds, and, in consequence, he fails completely to empty the large intestine. The latter is comparable to the bladder of a man who urinates five or six times a night. Can one affirm that this man has emptied his bladder? No; for there may be vesical retention, and no one can say that despite the repeated micturitions, there does not remain a certain quantity of liquid in the urinary reservoir.

In quantitative constipation a minimum part of the intestinal stock is detached each day and gives rise to an alvine evacuation, often in the shape of little, hard, round balls; this evacuation suffices to give the patient the conviction that he is not constipated.

There are then two kinds of constipation; horary constipation, which is apparent to the patient, and quantative constipation, which is latent, and of which the patient does not take note.

One of the conditions which render the latter still more deceptive is that it may coexist with a diarrhœa of five or six stools a day. This diarrhœa is the result of a secretion of a particular kind which liquefies slowly a part of the matters accumulated in the large intestine; it is a real intestinal shower, designed, as it were, to wet up and wash out the bowel accumulations.

* A posthumous monograph, prepared by a pupil of the late Professor Lasègue, Dr. A. Marfan.

Quantitative constipation may, then, take on two forms :

1. The *dry* form in which the stools appear at a fixed hour but the fæces are hard and in small quantity.

2. The *liquid* form with frequent stools, in which fæcal matters are small in quantity and have a diarrhœal appearance.

It is easy to see to what mistakes the liquid form may give rise ; for this diarrhœa, which is associated with a constipation which is ignored, opium is administered and a morbid state is aggravated that ought to be combated; the result of this kind of medication is often fæcal retention, which is irremediable.

I will here take occasion to explain what we are to understand by fæcal retention, and what is the difference between it and constipation.

The intestine is a sort of busy thoroughfare where the merchandise does nothing but pass along ; it is a road with a receiving depot and a terminus; if the fæcal matters simply progress with more slowness than in the normal state, there is constipation ; if, however, there supervenes an absolute arrest in the march of the intestinal matters there is retention, which may be complete or incomplete. When incomplete, it is complicated with what I call quantitative constipation.

Where does this fæcal retention habitually occur ? We know that there are two principal seats of retention, and we owe this knowledge to the circumstance that it is in our power to make of both seats a digital exploration. You can tell by such examination when the retention is in the rectum, and by palpitation through the abdominal walls when the retention is in the caecum. These two varieties, rectal and cæcal retention, are the best understood; the latter gives origin to typhlitis.

As for retention having its location in the colon, I know that it has been maintained that it is possible to feel the fæcal boluses in this portion of the large intestine, but from my experience I should say that it is very difficult to determine if the colon be the seat of an accumulation of fæcal matters arrested in their course.

Fæcal retention is too often overlooked for me to let pass the opportunity to give some practical suggestions of diagnostic import.

An individual, ordinarily an old man, has, we will suppose, for a long time been in the habit of making extraordinary efforts at stool, and as a result of much straining, would succeed in getting rid of a very small quantity of hard, dry fæcal matter; he is a victim of habitual constipation. Little by little the colic and flatulence from which he has so long been a frequent sufferer, undergo aggravation, and to these signs are added nausea, loss of appetite, and even vomiting; you have reason, then, to suspect complete arrest of excreta and their accumulation in the rectum or cæcum.

The first thing to do in such a case is to make a digital rectal examination, and if you do not find this gut impacted with scybala, you should make palpation over the cæcum, the patient being in a recumbent posture, and care being taken in kneading the abdomen to obtain relaxation of the muscles of the abdominal walls, the recti especially, which by their contraction oppose the exploration of the subjacent viscera.

The following case, taken from my note-book, illustrates what I have been saying:

At the time when I was chief of Trousseau's clinic, hotel Dieu, the latter was attending a gentleman of some political distinction, of extraordinary embonpoint. This personage was taken violently sick, and his naturally voluminous abdomen took on increased dimensions; the pain at times was excessive, but there was no diarrhœa, nor even constipation, nor was there much vomiting. There was considerable difficulty in arriving at a satisfactory diagnosis; some of the visiting staff said one thing, and some another. Some amendment took place, but the patient continued to suffer more or less from colic, flatulence and other digestive disturbances for eight or ten months, when one night, dame Cloacina sounded the alarm, and he ran for the night chair, nor were the necessities of nature satisfied till he had had seventeen full operations from the bowels. After this deliverance the patient experienced so much relief for days and weeks that he declared himself quite well. His disease, then, consisted in fæcal retention and loaded intestines, co-existing with seeming perfect regularity of the bowels. We were led astray from a correct diagnosis by the fact that the rectum did not seem impacted, and that, owing to his corpulence and excessive abdominal development, we were not able satisfactorily to explore the colon.

I return to constipation. A question arises which is far from being easy of solution, namely, the relation of constipation to alimentation. Ought the rendition of fæcal matters to be proportional to the quantity and quality of alimentary substances introduced into the intestinal tube, and in inverse ratio to the losses by other organs of excretion, such as the urinary passages, perspiratory glands, etc.? Have these losses an influence on the *quality* of the fæces, facilitating their induration ?

Notwithstanding my desire to give an answer to this question, I am obliged to confess that we have not all the data for a satisfactory solution, and I shall simply call your attention to a particular case, such as you are likely to meet any day in your practice.

A man has been confined to his bed for eight days from pleurisy, from bronchitis, or some other affection accompanied with a moderate degree of fever His regimen has been almost nil.

Previously to this sickness he was never constipated, and he has now gone a week without a stool. One day the medical attendant remarks this absence of alvine evacuations, and is alarmed, suspecting retention from obstruction; the patient takes the matter calmly, he has eaten nothing and what can he have to void? Here the cause of the want of action of the intestines is plain enough; the constipation is in the ratio of the restriction of the ingesta. If in such a case you order a purgative to facilitate the evacuation of intestinal matters supposed to be accumulated, you will undoubtedly obtain certain quantitative results, which will be chiefly a liquid secretion with a minimum of true fæces.

Is it a good practice to give purgatives under such circumstances? This is a delicate question to solve. It may be that the patient will derive benefit from the purgative by the fact of derivation by way of the intestine; from the point of view of fæcal retention, nothing is more doubtful than the utility of the purge, for there is no retention to combat. For my

part, I would never think of purging on such an occasion unless, indeeed, I wished to obtain a derivative effect, or modify a marked saburral condition of the digestive passages.

The study of the conditions which give rise to constipation has a very great interest to every practitioner, and to these I will now devote a brief consideration.

It is not necessary that I should do more than allude to the mechanical obstacles which may cause constipation and fæcal retention. A voluminous uterus, owing its increase of size to pregnancy or a tumor, and neoplasms of the ovary, may impair the permeability of the intestine, and cause obstruction. Fibrous bands in the abdomen, remains of an old peritonitis, may act in the same way; here the surgeon is often called to interfere by a capital operation.

Leaving aside the extra-intestinal obstacles, let us take up the causes which reside in the intestine itself.

In a first class, belong the constipations which result from the physiological or toxic action of some medicament or poison. It is notorious that the prolonged use of iron in medicinal doses sometimes induces obstinate constipation, especially in young girls; the costiveness which is due to lead poisoning and to opium, is too well known to require more than mention.

Another group comprehends causes of much greater importance but of more delicate appreciation; they are such as pertain to the functions of the nervous system relative to the intestine.

Nervous constipation may be observed in all affections of the central nervous system. It is in infantile meningitis that it is seen in its typical form; in this disease the constipation is absolute, and no medicament can overcome it.

The costiveness of infantile meningitis enters into the category of constipations with obstinate head ache. The frequent coexistence of costiveness with cephalagia much impressed physicians of a former period; they were persuaded that constipation engenders the greater part of cerebral affections and especially apoplexy; the part that the heart is believed now-a-days to have in the production of apoplexy was then ascribed to the intestinal tube.

However this may be, there is a certain number of constipated persons who have a feeling of heaviness in the head, yawning, dizziness, and buzzings in the ears, and all are agreed in attributing these symptoms to the constipation. One might well ask if in some cases the constipation is not the reflex consequence of the headache. I think this distinction may sometimes be made, especially when the patient is an old man or an infant, a class of patients in whom every encephalic affection manifests itself largely by constipation and headache; if you can show that the constipation is primitive, you can eliminate all idea of cerebral disease.

In hysteria you will observe fæcal retentions of nervous origin.

The fæcal retention of hysterical patients is often an astonishment to the medical attendant; its duration is comprised between eight days and six weeks. I knew one case of hysterical constipation to last three months; in another case the patient affirmed that she had not had a stool for six months, but I could not verify the correctness of this statement.

The indifference with which most hysterical persons support such prolonged retention is not one of the least curious phenomena of this bizarre disease. In many instances the belly is not swollen or tympanitic; the appetite may be but slightly affected; no discomfort seems to result directly from the constipation. If, perchance, vomiting be an accompaniment, you remark that the patient does not emaciate, although the vomiting may have lasted as long as the retention itself.

How does the nervous system act to produce fæcal retention in the hysterical? If we consider that these neurotic patients never experience the want of defecation; if we remember, moreover, that anæsthesia is almost without exception a characteristic of this disease, and that this anæsthesia actually exists at the other end of the digestive tube, *i. e.*, the fauces, it is perhaps legitimate to attribute the constipation to anæsthesia of the rectal mucous membrane.

Contrarily to what happens in hysteria, the ataxic is a victim of constipation, who experiences the want of defecation, but cannot satisfy it; you will see him stoop, twist himself, strain and press upon his abdomen to provoke an evacuation. Is his retention due to his paralysis, or to spasm of the sphincter? It is impossible to tell.

I arrange in a special group constipations of stomach origin.

Constipation in chronic affections of the stomach is the rule to which there are few exceptions.

Chronic gastric maladies all lead in divers degrees, to dilatation of the organ with a certain atonic softness of the walls; the alimentary bolus is expelled very slowly, and only filters little by little into the small intestine; this is probably the origin of the constipation.

What takes place in the particular instance of cancer of the stomach is not without interest. Dilatation of the stomach also exists here, and constipation (which is the rule in dilatation) would be expected; there is, however, diarrhœa. The reason would seem to be this: The badly elaborated chyme of patients with gastric cancer forms a fetid pultaceous mass which passes from the stomach to the duodenum, where it may be received with perfect tolerance (as is likely to happen in the first stages), but where it is sure, sooner or later, to cause irritation and provoke diarrhœa. The only proper way to treat this gastric diarrhœa is to give but little food at a time and to give it often, and this condition is better fulfilled by milk diet than by anything else. The diarrhœa of indigestion is of a similar nature; about two o'clock in the morning the stomach, in a tumult, expels into the duodenum an alimentary bolus, imperfectly digested, and considerable in quantity, and diarrhœa is the consequence.

There are certain abnormal conditions of which constipation is a symptom. Diabetic patients and large eaters often suffer for years from obstinate constipation, interrupted now and then by diarrhœal evacuations. In typhoid fever you observe constipation the first seven or eight days, and toward the close. When in a constipated typhoid patient palpation of the right iliac fossa elicits gurgling, the constipation is more apparent than real, as you will find if you give a smart purgative, which is always indicated in these cases, for the liquid matters which

accumulate in the ileo-cæcal portion of the intestine are of a very noxious character; if there is no gurgling the constipation is probably real, and should be treated with laxatives, the mildest and most soothing being preferred in this disease.

The old fashion of giving a castor oil purge the third morning after the accouchement, to a lying-in woman, is, I think, a good one, for the bowels are always torpid on such occasions, and fæcal retention is likely to be followed by malaise, loss of appetite and a tardy recovery.

I come now to the treatment of constipation.

Constipation, whatever may be its origin, is the direct consequence of a modification of the intestinal parietes; the fæcal matters are not responsible; the first thing to do then is to restore the intestine to a healthy state, and this conviction should dominate the therapeutics of constipation.

Having the intention of considering more especially the utility of lavements, I shall only touch upon what concerns other means of treatment.

It does not appear to me that the alimentary regimen deserves to occupy a very high position in the treatment of constipation. Certain articles of diet, it is true, such as stewed prunes, figs, bran or "Graham" bread have the reputation of ensuring regularity of the bowels. From my own observation I should say that fæcal movements obtained in this way are obtained at the expense of a slight indigestion, and that if the laxative food has precipitated an evacuation and thus rendered a service, it has not been without a resulting irritation of the digestive tube which is in some degree harmful.

Other hygienic means offer more chances of success than the alimentary regimen, but you will have to lay down the proper rules for each individual case; what is hygiene for one is not always hygiene for another. Is it a good thing to take a walk after meals? It may be affirmed that it is so for a certain class of patients, others would find a *post prandium* walk of no benefit, as far as their constipation is concerned. You must carefully study each particular case; some—perhaps the majority—of constipated patients are the better for abundant muscular exercise, especially in the early morning.

[Some cases of atonic constipation are benefited by wearing at night over the bowels a compress wrung out of cold water, but the range of usefulness of this hygienic means is limited. The same may be said of the advice to the constipated of the celebrated hydropathist, "drink a goblet of cold water on retiring and on rising."]

With regard to hygienic instructions, Trousseau laid down an excellent rule which if perseveringly carried out will not be likely in the end to disappoint. He enjoined upon his constipated patients to present themselves regularly at their chamber-cabinet, a certain fixed hour each day being chosen, and to solicit an evacuation. By this means a habit of defecation will become established.

[The electrical treatment of constipation properly comes under the head of hygiene, belonging to gymnastics (where in fact Niemeyer classes it). Both electrodes may be applied over the abdomen, or, what is better, one electrode may be placed over the lumbar region, while with the other you faradize the abdomen. It is doubtful whether by faradization you accomplish anything more than to cause contraction of the abdominal muscles; the application probably has no effect on the movements of the intestines themselves.]

The two really efficacious methods of treatment of constipation are by purgatives and by lavements.

I. Purgatives, which at the present day almost occupy the place in therapeutics formerly assigned to blood-letting, may be administered under three conditions:

(*a*) To combat the diarrhœa (the purgative expels the irritating matters which cause the diarrhœa.)

(*b*) As spoliative means (hydragogue purgatives constitute the only efficacious means of treatment in excessive dropsical effusions).

(*c*) To combat the constipation.

II. The purgative combats the constipation by fulfilling two indications: the expulsion of fæcal matters, and the production of a healthful modification of the intestine.

III. The efficacy of a purgative in constipation is not in the ratio of the energy of the medicament, but it depends on the following conditions:

1. It ought to be well diluted. Two drachms of Glauber salt is much less efficacious in one tumbler of water than in two. Fractional doses may be given with brief intervals between, instead of a full dose at one time. Your two drachms of Glauber salt may be given in ten doses with five minutes between the doses; you thus more effectively stimulate the secretions of the stomach and intestines, and you produce less intestinal irritation with the smaller quantity.

2. What has been said relative to dilution explains why it is not a good practice to give the purgative on an empty stomach. My plan is to order the laxative to be taken two or three hours after breakfast. In some cases it is a good plan to administer a small quantity of some purgative mineral water, as Pullna or Carlsbad, or even the American Hathorn—which is less objectionable than the others as far as the taste is concerned—as a drink with the meals. The French practice is to "cut" the mineral water with wine.

3. You should not stop with two or three administrations of the laxative medicine. As the capital indication is to modify the intestine, the purgative should be given every day or so for a month, and the same purgative should be used in preference to any other as long as its effects continue. With regard to the choice of purgatives no certain rule can be laid down. I have known perseverance with salines to produce cystitis. Nevertheless these sometimes work admirably; nothing often succeeds so well as a glass of Hunyadi Janos on going to bed. The vegetable purgatives, aloes, rhubarb, podophyllin, etc., sometimes give better results than salines. [The infusion of rhubarb with cardamoms, a tablespoonful after meals, suits a great many cases, especially where the constipation is complicated with gastric atony. The fluid extract of cascara sagrada, a teaspoonful at night, is cholagogue, as well as an intestinal stimulant, and will almost always prove useful in constipation, especially where the intestinal torpor is owing to a lack of the natural provoker of peristalsis—bile.*]

* The following combination has in the practice of the translator proved of excellent service:

℞ Tincture iris versicolor.
Fluid ext. podophyllum, ♏ 3 ii.
Tinct. nux vom., 3 j.
M. Sig. Take thirty drops at bed time.

The lavement is an admirable therapeutic agent; with it you can put in use the most varied medicinal means. According to the quantity and quality of the liquid, its degree of propulsion, its temperature, the duration of its conservation by the rectum, the lavement has a wide range of usefulness. In varying the elements of which it is composed, in combining them in different ways, you can fulfil the most dissimilar indications. The lavement may serve for the absorption of medicines and food, as well as for purposes of derivation. It may be employed for the expulsion of accumulated fæcal matters; in fine, it is *par excellence* the means of topical medication of the intestines, of which it may be made a powerful modifier. It is especially in the ways last indicated that the lavement appears to us to be the very best treatment of constipation.

There is a certain number of diseases attended with constipation, which seems dependent on induration of the fæcal matters. Here the lavement renders good service by mechanically overcoming the induration, by thinning out and dissolving the fæces. What are the best menstrua for effecting this solution, alkalies or acids? Probably the latter. Heat or cold? Probably the former; at least experience seems so to teach. An essential condition to success is that the lavement shall be retained for a considerable time,

There are morbid conditions where the constipation is due to dryness of the mucous membrane of the large intestine; in these cases oily, mucilaginous enemata, which favor the transit of the fæcal matters, will have a very speedy evacuant action. In diseases which are accompanied by a paralytic distension of the intestine where the latter is supposed to be inert, the lavement has an expulsive effect.

How far does the enema penetrate? I am inclined to believe that as propelled by the ordinary fountain or Davidson's syringe, the injection never goes further than the ampullary dilatation of the rectum; this portion of the large intestine is considerably capacious, and is seldom filled by the enema. It is, however, certain that this is in very many cases of constipation the seat of the retention. It is as much as ever if, with the patient in a stooping position, or "on all fours," you can succeed in throwing the injection higher than the sigmoid flexure.

As then the lavement can scarcely do more than wash out the rectum, it may be asked how it can possibly do the good that is claimed, and act as a modifier of the intestinal walls?

To show that the action of the enema extends beyond the point to which the liquid penetrates, and that this action is subordinate to the quality and the quantity, I will remind you of this fact; a simple glass of sweetened water administered by the inferior passages, may by its presence in the intestinal tube, provoke severe and widely diffused colicky pains.

I have compared the intestinal mucous membrane to the bronchial mucous membrane from a clinical point of view. It is now the fashion to prescribe medicated inhalations in bronchial affections, and apparatuses have been devised which are supposed to convey a soothing vapor or spray to the bronchi. This is a mistake and a delusion; the vapor will not penetrate farther than does the lavement in the large intestine; nevertheless, these pulverizations are a good modifier, for they act at distance by propagation to neighboring parts of their action on the points with which they come in contact. The enema acts in the same way on the whole of the large intestine, *i.e.*, by propagation of influence, although it reaches only the rectal portion.

With the lavement you may combine some excitant or anodyne substance, such as soap, honey, molasses, salt, or you may make it more irritating with gamboge, croton oil, epsom salts, or senna. The irritation of the rectal ampulla will propagate itself throughout the large intestine, and will thus provoke an exaggerated secretion, and violent peristaltic movements in all this portion of the digestive tube. You now see how a modification in the tunics of the intestine is affected by the lavement.

When you wish to overcome a spasmodic constriction, experience has proved that a lavement of belladonna, hyoscyamus, or chloral, will render excellent service. Musk, camphor, and assafœtida, have been administered in the same way, with often an anodyne or anti-spasmodic effect of the most marked kind. No remedy is more useful when administered in this way than laudanum (as in the starch and laudanum injection), but its utility is chiefly restricted to cases which are the opposite of constipation.

If in this familiar talk I have been able to persuade my audience of the superior excellence of the lavement as a therapeutic measure, and its wide range of usefulness, not merely in constipation, but in varied morbid states, I shall have accomplished the object which I had in view.

[Few persons have departed this life more lamented than Professor Lasègue, whose death took place a short time ago. He was a man who to varied acquirements and a profound knowledge of medicine in all its departments (of which he seems most to have cultivated medical psychology and neurology), joined a pleasing address, fluency of expression, and amiability of disposition, which rendered him popular as a physician and as a teacher. Since the professor's death, several of his pupils have gathered together in two large volumes his numerous medical writings, scattered through various periodicals, especially the *Archives Generales de Medecine*, of which he was for thirty years the editor. These have just been published under the title, "Etudes Medicales." The above article, which has not before been reproduced, was one of his latest efforts. It is a fair sample of his classic style and his practical manner of treating subjects. E. P. H.]

Methods of Studying the Physiological Action of Drugs.

II.—ACTION ON THE MUSCULAR AND NERVOUS SYSTEMS.

By Robt. Meade Smith, M. D., Professor of Comparative Physiology, University of Pennsylvania.

THE action of poisons may be localized in the muscular and nervous systems with equal accuracy and even more readily than we have found to be the case when studying the action of drugs on the heart; and it is evident that accurate information as to the mode and seat of action of drugs on the muscles or nerves is capable of more immediate practical application than is possible in the present state of cardiac therapeutics. It is clear that the knowledge of the physiological function of an organ must precede a successful treatment of disease of that organ, and the more intimate our acquaintance with the precise mode of action of different drugs on that organ, the greater will be the probability of our combating different diseased states, as an advancing pa-

thology permits of their recognition. A successful therapeutic system must therefore start with physiology to enable us to be familiar with the action of organs in health; must include pathology to enable a recognition of departures from the normal standard, and necessitates a close knowledge of pharmacology to render possible the selection of appropriate drugs.

While in the case of the heart, physiology is in advance of pathology, and even of anatomy, for many of the points of cardiac physiology cannot be proved to rest on an anatomical basis, in the case of the nervous and muscular systems our knowledge is more evenly distributed. The various diseases of the nervous system, particularly those which from our ignorance we are apt to term functional diseases, are nearly all capable of recognition through the constancy of certain definite symptoms, nearly always in the direction of an exaggeration or depression of functions; and although our treatment of such diseases must be confined to the combating of those symptoms, the better our power of localizing the action of drugs, the greater will be our success in removing the evidences of disease. As in the case of the heart, so in the study of the action of drugs on the muscles and nerves, our first experiments for the reasons there given, may be confined to the cold-blooded animals. For when we find that the administration of a drug to a frog is followed by the production of convulsions, we know that effect is due to direct action on some part of the nervous or muscular system, and cannot be due, as might be the case in a mammal, to interference with respiration or circulation; for in the frog respiration and circulation may be completely arrested without producing any reflection on the nervous system or muscular apparatus. So, too, in the frog, the muscles and nerves may be isolated from their blood supply, or even removed from the body without losing their functional activity.

Since muscular activity is an index of nervous action, we will find that the action of poisons can be better studied by examining the condition of muscles and nerves together; for if we find that a muscle, after the administration of a poison, has lost its power of responding to direct stimulation, it is evident that no conclusion can be drawn as to the condition of the motor nerves, unless some means is employed to protect the muscle from the action of the poison and preserve it as an index of the integrity of the functions of the motor nerves; therefore, in studies on the motor apparatus the condition of the muscles must first be established.

The first step in this process may be the application of a solution of the poison to an excised muscle, though here, as in the case of the heart, it must be remembered that of all the different solvents, none are entirely indifferent to the animal tissues; the least noxious will be here also a 0.5 per cent. salt solution. To study the action of a drug on an isolated muscle, a frog may be killed by pithing, and the gastrocnemius muscles excised from each leg and placed together in a watch glass containing a 0.5 per cent. salt solution; each is then stimulated with the secondary current coming from an induction machine, which should permit of a graduation of the induced current, the wires of the electrodes being as far apart as possible, and the strength of current determined, which is necessary to throw each muscle into tetanus. Care should be taken to apply the current at corresponding points on the two muscles, for if the muscle is irritated at the point of entrance of its nerve, a much weaker stimulus will serve to throw it into contraction than if any other point of the muscle is irritated.

After the weakest current which will cause contraction in each muscle has been determined and noted, one muscle is removed from the salt solution and placed in the solution of the poison and tested from time to time and the changes in its irritability compared with that of the muscle which remains in the salt solution.

If the poison which is being experimented with is in the form of a gas or a vapor, instead of being placed in a solution of the poison, the muscle may be suspended in a bottle by a wire passing through the cork, through which two glass tubes also pass, one dipping into water at the bottom of the bottle and the other just passing through the cork; by passing a stream of the gas through the longer tube it will come in contact with the muscle, which is preserved moist by the water, and changes in its irritability may be determined by fastening another slender spiral wire to the free end of the muscle and connecting it and the wire by which the muscle is suspended with the binding posts of the secondary coil of an induction machine. The normal muscle which is used for comparison should be prepared in the same manner, air instead of the poisonous gas being passed through the bottle; and since the gas only comes in contact with the superficial fibres of the muscle a thin muscle, such as the *sartorius*, should be selected instead of the thicker gastrocnemius.

A more reliable method than either of the above is to kill a frog by pithing, and then wash out all the blood by inserting a glass canula into the *bulbus aorta*, opening the vena cava and then injecting salt solution until all the blood is removed. The irritability of any muscle is then determined and the solution of the poison afterwards injected into the blood-vessels, and its effect on the muscular irritability noted.

After the effect of the drug on direct muscular irritability has been determined by the above methods, it next remains to examine the condition of the motor nerves as regards conductivity. To accomplish this instead of directly simulating the muscle the electrical current must be applied to the motor nerves. Various methods may be employed: either the blood may be washed out of a frog as above and the irritability of the sciatic nerve determined before and after replacing the blood by the solution of the poison; or better, the poison may be injected by a hypodermic syringe during life under the skin of the back.

In the latter case, should it have been found that the poison depresses the irritability of the muscles to direct stimulation, and it be desired to study the action on the motor nerves, the muscle must be protected from the action of the poison while access to the nerve is still permitted. Or even if the poison has no effect on the muscle, to study its action on the nerves, a poisoned muscle and nerve must be compared with one which is normal.

To render this possible, all that is necessary is to ligate the blood-vessels of one limb and compare the irritability of its muscles or nerves with that of a limb not so protected. One hind leg of the frog is

the locality ordinarily selected for isolation, which is readily accomplished by ligating the femoral artery just above the knee, or the common iliac artery within the pelvis. An even simpler plan and one equally efficacious is to carefully isolate the sciatic nerve in one leg and then to surround the entire thigh, excluding the sciatic nerve, with a ligature which is tightly tied, so compressing all the tissues of the leg and preventing circulation.

If after arresting the circulation in one limb by any of the above processes, a solution of a drug is then thrown into the general circulation by injecting it under the skin of the back, the poison has free access to all the organs of the body with the exception of the limb whose blood-vessels have been tied. After the complete effects of the poison have been produced, the animal may then be killed and the irritability of the sciatics of the poisoned and protected limbs compared.

Of course in the above experiments it is supposed that the muscles have preserved their irritability unaffected by the poison; in such a case if the nerve of the poisoned leg requires a stronger stimulus to throw its muscles into contraction than the nerve of the isolated leg, it may be concluded that the drug reduces the irritability of motor nerve trunks.

In the case of many poisons, however, it will be found that the muscles will lose in irritability to direct stimuli, as found by comparing the strengths of current necessary to throw muscles to which the poison has access into contraction, as compared with those protected from the poison by ligature of their blood-vessels. But even if a drug should paralyze muscular fibre it may also act in a similar manner on the motor nerve trunk or termini; these effects may be recognized by shutting off the poison from the muscle while still allowing it to have free access to the nerve. This is accomplished by ligating the femoral artery as near the knee as possible and then injecting the poison under the skin of the back; the poison is then prevented from acting on the gastrocnemius muscle of that leg while the sciatic nerve trunk is unprotected. If in such circumstance stimulation of the sciatic nerve trunk in the ligated leg does not produce contraction in the gastrocnemius muscle in which it is distributed it may be concluded that the motor nerve trunks have lost their power of conduction.

Very few drugs, however, completely destroy the power of motor nerves of transmitting impressions, while many depress this power below normal; a little different course must therefore be pursued to recognize slight changes in irritability. If the femoral artery is tied in one leg just above the knee and the iliac artery of the other leg tied in the pelvis, the poison injected into the general circulation will have access to the sciatic nerve trunk in the former case and will be shut off from the nerve in the latter, the gastrocnemii being protected in both instances. If, therefore, the drug depresses the irritability of the motor nerves it will require a stronger stimulus to tetanize the gastrocnemius of the leg whose artery was tied at the knee than the one whose blood supply was cut off in the pelvis. Of course if the drug have no effect on the muscular irritability it is only necessary to tie the iliac artery and then compare the irritability of the two sciatics.

The question as to the action of drugs on the functional activity of the sensory nerves is more difficult of solution; various methods have been proposed but all are open to more or less objection. The best plan, when it has been proved by experiments conducted as above described that the motor nerves are unaffected by the drug, is to ligate one femoral artery high up in the leg or in the pelvis and inject the poison under the skin of the back as before. Both sciatic nerves are then isolated, divided low down in the leg and the central end of each irritated and the strengths of current compared which are necessary to produce reflex action in other parts of the body. If in such a case the poison depresses the irritability of the sensory nerves a stronger stimulus will be required to produce reflex action by irritating the sciatic of the non-protected leg, than will be required in the leg whose blood supply has been cut off. This plan will give tolerably reliable results even when the drug acts directly on the spinal cord, provided only that the motor nerves and muscles escape, for if they are paralyzed no reflexes can be produced. Should, however, the poison act on the muscles or motor nerves another plan must be followed.

In such a case one hind leg of a frog may be partially amputated, leaving the sciatic nerve the only connection between that leg and the body, and a solution of the poison injected under the skin of the partially amputated member. If then a stronger stimulus is required to produce reflex action by irritating the sciatic of the amputated leg than for the opposite sciatic, it is probable that the poison has depressed the conducting power of the sensory nerves. Of course the drug may on the other hand act as an irritant to the sensory fibres; in such a case reflex motions will be either spontaneously evoked or will require only a slight stimulus for their production.

Another point which remains for consideration in this outline sketch of the methods of studying the action of drugs on the muscular and nervous systems, is the means by which convulsions and paralysis are produced by drugs, a point which will bring us to the study of the action of poisons on the central nervous system.

Drugs may produce convulsions either through disturbance of circulation or respiration, and either convulsions or paralysis by direct action on the spinal cord or brain, the motor nerves, the muscles or sensory nerves. If convulsions follow the administration of a drug to a frog it may be concluded from reasons already given, that that effect is due to action on some part of the motor apparatus; that being the case, the attempt to localize the seat of the cause of the convulsions, or paralysis as the case may be, should commence with the examination of the condition of the organs of conduction. In the case of paralysis this is readily accomplished by separate stimulation of the muscles and nerves; if direct stimulation of the muscles causes contraction and irritation of the nerves none, it is clear that the paralysis produced by the drug may have been due to loss of conduction through the motor nerves. If both the muscles and nerves preserve their irritability, the paralysis must have been of central origin. If the drug produces convulsions their nature will probably give some idea as to their causation; thus convulsions of central origin usually throw entire

groups of muscles into co-ordinated contraction, while convulsions which originate in the peripheral nervous system usually implicate different muscular fibres at different times and with different degrees of vigor, producing what is known as "fibrillar contractions."

Further, contractions of peripheral origin will persist after section of the main nerve trunk of the part, while they will of course be absent in that limb if of central origin; and finally convulsions of peripheral origin will not appear in the limb whose blood supply has been cut off, while if of central origin they will appear in every limb whose nervous connection with the spinal cord remains intact, whether still connected with the circulation or not. And lastly, if the convulsions are of cerebral origin, section of the spinal cord will arrest them, while after a similar procedure, convulsions of spinal origin would in all probability persist. It is, however, possible that convulsions may persist in a member after section of its nerve trunk. The convulsions are then, of course, of peripheral origin, but it remains undecided whether they are muscular or nervous in origin. This point may be settled by first injecting into the circulation a drop of a weak solution of curare, which paralyses the intra-muscular motor nerve endings while leaving the muscular fibres intact. In such a case if convulsions still appeared after injection of the drug, they must have been due to direct action on the muscular fibre, while their absence would prove that they had previously been caused by irritation of the intra-muscular nerve termination.

Without directly producing convulsions or paralysis, a drug may so modify the functional activity of the spinal cord as to interfere with its normal production of automatic reflexes. These reflexes are of the most varied nature, and may govern the innervation of the respiratory or circulatory mechanism, or any of the complex co-ordinated muscular functions. All that will be at present considered in this connection is the manner in which we may localize interference with the simplest of these automatic functions.

In the normal state sensory impressions produce orderly reflexes, which may be controlled or prevented by automatic centres in the brain. Poisons may modify these functions, either by preventing or delaying the production of the proper reflex to any given sensory stimulus, or by destroying the control of the inhibitory centres in the brain over such reactions. Thus, if the inhibitory power is entirely lost, the spinal cord may be thrown into such a state of exaltation that the slightest sensory stimulus, which in ordinary cases would produce a correspondingly slight reaction, may throw the entire body into general convulsions. Or, instead of this condition of exalted spinal irritation, the exact opposite may prevail, and the cord refuse to respond to the strongest sensory stimulus; between these two extremes may exist the most varied degrees of action in either direction, and their determination is reached by the comparative measurement, before and after poisoning, of the time required by any given stimulus applied to the skin to evoke a reflex contraction in a frog from which the cerebral hemispheres have been removed.

This is accomplished by separating the brain from the spinal cord by cutting through the skull with a pair of scissors on a line tangent to the posterior borders of the tympanic membranes and then destroying the brain by breaking it up with a needle; if much bleeding occur it may be checked by driving a small wooden plug up through the spinal canal into the brain.

After the operation the frog should be placed under a moist bell jar until the shock of the operation passes off; this may be recognized by the change from the sprawling attitude first assumed by the frog, to one more nearly approaching the normal, the hind legs being drawn up under the body.

When it is believed that the shock has entirely passed off, the frog may be suspended by a hook passed through its nose to some suitable support, avoiding draughts of air and drying of the skin (by repeated immersions in a vessel of water). A test liquid is then made by diluting 1 c. c. of sulphuric acid with about a litre of water and immersing the tip of the longest toe of the hind leg in this liquid, taking care that no part of the frog comes in contact with the side of the vessel and counting the number of seconds after the immersion until the foot is withdrawn from the acid; the foot is then well washed in water to prevent corrosion by the acid. This procedure is repeated several times, at intervals of five or ten minutes, until the times of immersion before removal of the foot become nearly constant. The solution of the drug is then injected and the same toe immersed in the acid to the same extent and the duration of immersion noted as before.

Every reflex action requires the functional integrity of a sensory nerve, nerve centre, motor nerve and muscle; therefore, if any one in this chain is implicated in the poisoning, there will be a break in the production of the reflexes; studies on the motor and sensory apparatus must, therefore, precede studies on the reflex action. If the drug in question paralyze either the motor or sensory nerves or muscles, the leg experimented with must be protected from the poison by ligature of its blood-vessels.

Having determined in the above manner the action of the drug on the co-ordinating functions of the spinal centres, it then only remains to examine into the action of the drug on the inhibitory centres of the brain. It is known that there is some mechanism in the brain which depresses the reflex activity of the spinal cord, for if only the anterior part of the brain is removed by cutting through the skull on a line tangent to the anterior border of the tympanic membrane, and the time of reflex action determined as above, it will be found that then cutting through the cord behind these membranes will greatly increase the reflex activity of the cord.

To study the action of drugs on this mechanism, the cerebral hemispheres should be removed as just described, and the time of reflex action determined before and after the administration of the drug. If the reflex activity is found to be depressed the cord should be divided below the medulla, and the time of reflex action again tested; if it is now greater than it was before, it is probable that the primary depression was due to stimulation of the inhibitory centre. On the other hand, drugs may paralyze the inhibitory centre. In that case, after the administration of the drug, the irritability of the cord would be increased.

The Neutral Treatment of Fevers.

By L. L. Holcombe, M. D., Terrebonne Station, La.

THERE is a toothless old saw that doctors are prone to disagree, and I say the more is the pity that such is the case, for there is no body of men whose unity should be more intact, mentally, socially, and morally, than that of the medical profession. The consequence of this diversity of ours is that the world of medicine is more or less a chaos of doubts, vexations and uncertainties; nothing is real and substantial—so, like the house built upon the sand, it is ever ready to shatter and fall to pieces. This state of things leaves us, in fact, to the just jeers and animadversions of both the educated and uneducated laity, and the bitter doubts and upbraidings of our own consciences. Whatever may be the feelings and notions that actuate and incite these differences of medical men, it is none the less detrimental and disastrous to our corporeal integrity and general welfare. It must be admitted that this morbid spirit of controversy is a growing evil of our profession. And often it is the case that the *ipse dixit* of the highest authority is underrated by the *ipse dixit* of a co-equal and co-ordinate authority. And thus the *ipse dixit* of the one neutralizes the *ipse dixit* of the other. Thus we have it, the distinguished and prominent Dr. So-and-So projects some great medicine, extols it to the skies, claiming that its wonderful merit and virtues are based upon the results of his own extensive observations and experience, both in private and hospital practice. But here comes along another peer of greatness—infallible and unquestionable authority—and incontinently denounces and condemns the thing as utterly worthless and valueless, basing his theory, opinions and beliefs, in turn, upon a very extensive and most careful trial, observation and experience. Or, mayhap, on the other hand, the great world of medicine first admits the great merit of the wonderful remedy, and takes up the approving and laudative refrain, and it becomes, for a time, the great thing of the day. Years of use and trial pass by; a quarter, or half century may find it still in vogue; but on a sudden, *mirabile dictu!* the great discovery and remedy is, in a moment, denounced and abandoned as useless, if not decidedly harmful. Thus are the weak whims and prejudices of our ilk propagated, and that mostly through the jealous weaknesses and influences of great men. I have only space enough but to just hint at this enormity. The whims and puerilities of a Rush, a Thomas, an Abernethy, a Ferrar, a Hosack, etc., etc., prove sources of amusement to the deeper intellects of the present day. They were but comical old gentlemen, who were decidedly "off" in matters of medicine. How could they be so stupid as to use medicines and remedies a life time, and not find out, not even at last, their utter worthlessness? Phew!

In the great mechanism of medicine there are many wheels which are constantly moving the wrong way, and which are great drawbacks to the science. As Koch finds a bacterium after a painful study and unspeakable work, here come upon his heels two great scientists to doubt the thing, and to cast a cold draught upon it. Even the liberal spirit of Pasteur has chuckled over the folly. Such are the jealousies and littlenesses of the great.

As illustrative of this spirit of ignoring and differing, let us refer to the great systems of medicine. How flagrant and abrupt are their differences, and *ipse dixits!* How often do we find in them the most palpable contradictions, and diversity of views! Here we find that medicines and remedies that have been jogging along the rough road of experience for a lifetime, unceremoniously laid aside, in a moment, as little better than sawdust. Nitrate of silver, for instance, which has held peculiarily its own in the cure of epilepsy for a century or more, is pronounced by Dr. Reynolds, in his splendid system of medicine as "of no avail;" he says the same of the salts of copper. Da Costa says *narceia* is next to worthless; notwithstanding it has been most highly lauded by other great writers. Dr. Edis, in his valuable work on the diseases of women, finds at this late day, musk, castor, valerian, and such like antispasmodics as of little or no use in hysteria; and as for the popularly and largely used bromides, they do more harm than good in this complaint. Prof. Flint denies the value of the chlorate of potash in phthisis; and thus it goes. The great medicines of the past now cease to be of any virtue. Men change and diseases with them, is a very questionable truth. For my part, I believe the diarrhœa that Adam must have had after partaking so heavily of so indigestible a meal as the forbidden fruit, is very near the counterpart of that which might now affect his honored descendant, Mark Twain; and *a priori*, I am strongly of opinion that the ancient chalk-mixture was fully as efficient in that complaint as our modern article, which, *cæteris paribus*, I believe to be identical.

This extraordinary exordium is the outgrowth that has resulted from the kindly and unkindly criticisms of my first article on *neutral treatment of fever*, by Drs. Flora and Patterson, in the September number of this journal.

As for the rather "unkind cut" of Dr. P., I acknowledge that "I owe him one." He, evidently, is a neutralizer of the first water; and a theory he has, too, to maintain; and it is to neutralize with hot water and milk, in place of soda and the other alkolies. I approve most heartily, doctor, of your plan; as the old saying has it, it's the other way of "whipping the devil around the stump." Dilutions, ablutions, and solutions—take part in my plan of neutral treatment. They render crudities, acidities and *saburra* bland; they check irritation; lessen temperature, and furnish a current, as it were, by which other drugs and deleterious matters may be sluiced, and washed, as it were, from the system. But, as to the indiscriminate use of milk in all cases let me say, that with certain persons it disagrees, and sometimes forms concretions of a very troublesome nature in the bowels. I have at present a patient who has been passing, after a course of both raw and boiled milk, a rather impure article of cheese. She has suffered from some obscure obstruction for some time, and within a few days she has passed a good quantity of this kind of matter. Dr. Hartshorne, too, in his note to the American Edition of Reynold's System of Practice, makes allusion to this sort of concretion. In my case much irritation and constitutional disturbance has resulted.

In the use of gelsemium, I am cautiously inclined, for it is a medicine of great power for weal or woe. A striking case of its unexpected energy has but

lately occurred to me. It was in the person of a young man of about 23. I prescribed for him about eight drops of Messrs. Parke, Davis & Co.'s normal liquid of gelsemium, which I am convinced is of full strength. After two or three doses, something like alarming symptoms, or what may be called the true constitutional effects, were exhibited. In fact, the effect was so decided that I reduced the dose to three drops, when still the effects were very decided and marked.

Dr. Flora having been more liberal in his criticism, I have to thank him for his brotherly *suavity* and apparent "*dissent*;" he differs with me so slightly that it gives me pain to call him an antagonist.

As to the kinds of fever I have allusion to in my treatment, I will say they are mostly of the idiopathic class, not so much of the "bright-red tongue, with denuded papillæ kind;" for such fevers, I take it, are but symptomatic of *erosions* and ulcerations; and, in fact, are traumatic in their very essence. It is but a *quasi pyrexia*, always ceasing when the cause ceases, and not continuing, as it were, by pure habit, as often does the idiopathic variety. Such fevers as Dr. F. has allusion to, are to be found in confirmed dyspeptics, and by the older writers might be simply called fits of "enteric indigestion," or inflammatory dyspepsia. They are decidedly irritative in the kind and character. They go hand in hand with bowel affections, such as diarrhœas and dysenteries. In such cases I claim little or nothing for my neutral treatment. As Dr. F. says, harm might the more likely result; mineral tonics, with demulcents would accomplish good in such cases. When the tongue is dry and parched, turpentine and mucilage would, perhaps, be of service. Diluents in abundance are then also demanded.

As to fever being an "entity," in its effects it is; yes, it is a substantial principle most definite in its results. It is at once a symptom, a cause and effect. It is definite—almost tangible. We see the demon in the *tout ensemble* of its victim; we feel it rioting in in the pulse, as it trills its song of death. We hear its threatening thunders in delirium. Is fever, then, something like an "entity"—if it be not an "identity;" for Webster graphically defines "entity"—a being; essence; existence; and what less is fever? Nay, hath not fever feelings, sensations, emotions, etc.? Is it not markedly affected by moral and mental excitements? Why do shocks sometimes lessen temperature, and excitement increase heat, etc., etc.? In short, fever is not a part of the system; it is an outsider, and extraneous, acting upon laws peculiarly its own. Nerve and blood do not constitute fever. Then in the progress of its disastrous tread we are to drive it from its ambushes, by a principle as powerful as itself. The ancients (and how much we revere them!) loved to seat life in the blood. There was a fanciful "animal spirit," which, like a harlequin, danced about in our organism, giving shape to existence. To-day fever is as illy-defined as was life in those days, and now. Fever may be the animal spirits gone mad. The true essence of fever lies in a something beyond our ken; it revels in the system, and often, as far as the researches of morbid anatomy goes, leaves not a trace behind by which its intrinsic nature may be known. So much for the "entity" of fever.

And now to sober truth. That I am most decidedly practical in my doctrines and beliefs as to my neutral treatment of fevers, I will say that at my present writing I have three cases of fever in the state of convalescence. One was a case of fever of continued type, that successively dropped from a *quotidian* to a continued form almost without any marked intermission. The other two were tertians. In these cases quinia had been faithfully and heroically given, and the patients were cooled (?) with all sorts of acid drinks and food. But, strange to say (?) the quinia did not do a bit of good: the fever went right straight along.

No. 1. Continued type. Child, 9 years. Fever high; skin hot and dry; great debility; some thirst; tongue foul and heavily coated; breath fœtid; anorexia; bowels confined; headache; jactitations, etc.

Treatment: Bicarb. sod., ℥ j; sod. borat., ʒ ij; spts. nit. dulc., ʒ ij; fld. ex. gelsemium, ʒ j; aqua banana, ℥ viiss. Sig. Big spoonful every two to three hours, in half tumbler of water. Twenty hours after, state of child thus: Fever much abated; little soft, warm perspiration about the breast and neck; decidedly quiet; had quiet sleep of several hours; no great thirst; tongue cleaning; takes a little soup; says he feels better. Treatment continued at longer intervals. Reported two days after, free of fever and doing well; wants to eat much; tongue very nearly clean; sat up in bed a little; wants oranges and lemon candy. Next day continues to improve, and convalescent. Give the soda mixture three times a day, a little tincture of hydrastis added; acescent food and drink avoided.

The other two cases very much alike each other, in same family. Had been very much weakened "trying to get cured with quinia."

Treatment: They had taken nothing in the shape of a purge; gave them good "searchin" doses of castor oil. Soda bicarbonate, ℥ ss.; soda sulphate, ℥ j; potas. nit., ʒ jss; P. D. & Co. normal fld. of gelsemium, gtt lviij; zinziber ess. ʒ j; aqua banana. M. Sig. One large spoonful every two hours during fever; three big spoonfuls a day in the intervals. Ordered large quantities of plain water to be taken at regular intervals, as well as with medicine. After the second day no return of the fever in either case; convalescent. Medicine continued; full diet, without any article, whether vegetable or animal, of an acid nature.

In my practice a little quinia goes a long way in the treatment of fevers of the class I have under consideration. In fact, if my plan of treatment be tried in the idiopathic variety of fever, the huge monopolies of quinia will find a check in the demand, that will make their heads swim.

Let the medical fraternity give heed to these hints. Let them avoid acids—acid food, diet, or regimen. It is a morbid acidity, a morbid fermentative state of system, a sour germ-generating condition of the mucous surfaces, and the slushy contents of the *prima via*—that is the great trouble. Purge with Rochelle salts, rhubarb and calomel—podophyllin and leptandrin, if you will, but give soda anyhow; neutralize, and wash out the stomach with draughts of warm water when sick stomach, retching, or vomiting occurs. Bathe the surface, particularly of young children, with soda and water of good strength. Do these things, I say, and your bottle of quinia will last you a long time.

As for quinia, it will make a beautiful chill and fever out of a slight feverish case of indigestion. It

will give you a nice good fever stomach and tongue in a few doses and hours. This is, in fact, a medicine like some others that have been of great repute for a while, and if it doesn't sink greatly from the estimation in which it is now held it will surprise me. I have given it often, in every way, and I don't find it worthy of all the praise bestowed upon it, by a long jump. It is a most questionable remedy, I think, in dyspepsia; it is a great irritator of the mucous membrane, and dyspepsia is little else than an irritation of the mucous surfaces of the stomach and bowels; there is no such thing, I believe, as atonic dyspepsia, in the sense in which it is applied. Gastritis in one of its multifarious degrees is the true and only form of dyspepsia. Intestinal dyspepsia, as I take it, is what the old writers call an infarcted and saburral state of the bowels, which is indissolubly connected with a low or high state of irritation, in other words, a modified grade of inflammatory action. The fine lines drawn by systematic writers upon medicine, in distinguishing between between high degrees of congestion, (infarction), irritation, erethism, etc., etc., are but phantoms of the imagination, and only find a foothold in pure theory and speculation. For practical purposes the Gadgrind system of "facts," pure "facts," is much more useful in our day and generation. And truly it is this "respect that makes calamity of so long life," I mean the calamity of pain and disease.

Too much speculation, too much seeking after the unknown, and imagining! Look at most of the works on Practice. How long, how tedious their theories and speculations upon the uncertainties of their subject; how tedious and patience-exhausting their dissertations upon the pathology, morbid anatomy, nature, etc., of disease; but how short, how unsatisfactory, how really uninstructive their descriptions of treatment. What is the great utility, the great substructure of our science? It is the amelioration of human, and animal suffering. It is, in short, the cure of disease, or at least its amelioration and relief. I am reminded of this part of my subject by having just threaded through a ponderous specimen of modern practice. I find after getting up from my task, that so far as the actual treatment of disease is concerned I have learned nothing—a simple *vade mecum* or conspectus would have answered my purpose as well; and how much more useful is, as it were, the ephemeral medical literature of the day! In this ponderous work I am enlightened on every other department and my mind loaded down with useless speculation and opinion. But the old-time poultice, and the few grains of calomel and magnesia and rhubarb are just what I may read in works a century or more old. I yearn for the new regime in medicine—when treatment will constitute the bulk of all books on medicine. Too much molecular and microscopic doubt has to a great extent rendered our actual utility a questionable necessity to the body politic.

Dr. Robert Meade Smith says (as quotes Dr. Patterson, Sept. No. of the GAZETTE): "No one will claim that all physicians are scientists, but too many are mere therapeutic machines, applying by rota in their practice standard remedies to given diseases." And God grant that there may be more therapeutic machines than there are, and less of scientists. For what is their errand? Is medicine a mere farce, a make belief—an atom- and germ-hunting business—and nothing else? Is it the physician's business only to be straining his eyes through a brazen tube in search after a spec that some one else hasn't found or seen. I admit that in some respects such discoveries have their uses, but I really think that too much devotion to such pursuits warps the mind and renders a person unfit for the active duties of the profession. As for the physician what more can he desire, by way of fame, than to be distinguished for his many cures and his great ability in relieving poor suffering and agonized humanity. Here truly is where all his honor lies; here is the sum of his position towards his fellow beings. The deeper branches of research should be left to men who are not really in active practice. By such pursuits, closely followed, the mind is unfitted for ordinary matters. They injure the physician's powers of clinical discrimination and judgment, and at the same time give him a distaste for the practical part of his calling, causing him to be guilty of negligence, etc.

The ordinary physician may be a useful and indispensable member of society by rendering himself a necessity, an individual whose services are ever in demand. If he devotes his life to the vivisection of cats, frogs, mice, and rabbits, he can be little prepared, in an emergency, to fulfil the business of his calling, that of relieving the pangs and sufferings of human beings. Every one knows that there is much idle work done in the way of germ- and atom-hunting. Things that have been found by a thousand others, and may be taken for granted, are being found again. This adds nothing to knowledge. The physician's duty, in short, is to confine his whole attention duly to the greatest and noblest of undertakings, the alleviation and amelioration of human suffering. This alone is fame enough, and no man can be greater than he who accomplishes this task best. It is only to be done, too, by leaving ponderous thinking and searching to those who are prepared by time and fortune to spend their lives in their closets and studios.

But not to lose sight of our subject. I beg leave to say to Dr. P., in conclusion, that my system of exclusively neutral treatment of fever involves essentially the annihilation of spores, germs, microbes, micrococci, etc., first, by the avoidance of the conditions and state of the alimentary system best calculated for their generation and propagation; and secondly by their murderous destruction after they have been formed, either by neutral chemical action or by the physical force of dilution with hot water, if need be; which, by the way, requires but a temperature of 55° in the process of pasteurizing beer and other similar compounds, is sufficiently high to destroy permanently the yeast cells. I say my neutral plan aims to accomplish those ends—which are now the great fashion of the day. Whatever may be the acid constituent of bicarbonate of sodium, we know that a glass of vinegar may be rendered neutral and acidless by its continual addition. The carbonate of potassa and soda might be used as well, but I use the bi-carbonate as being less diagreeable to the stomach.

I am fully in hopes that my brethren in the profession generally, will give my plan of exclusively neutral treatment a fair trial. I should like to see it put into active use in some of those terrible districts in

the South, where the worst forms of pernicious and typho-malarial forms are endemic, as it were.

As a preventive measure I can guarantee that if the systematic use of a saturated solution of the bicarbonate of sodium, with light laxation if need be, by sulphate of magnesia, or sod. et. potas. tart., with a diet, utterly devoid of acescent or acid substances, malarial fevers and irritative, fevers affecting both adults and children, will, as a general rule, be a matter of efficient certainty. I have found that at the first intimation or premonitory hint of these affections, if full doses of the bicarbonate are given, followed or preceded, as the case may be, by an active purgative, the fever is snapped short in its very incipiency, and that in ninety-nine times out of a hundred examples. And quinia can do no more, if as much.

Finally, I make a general appeal to my beloved brethren and confreres, of the noblest of professions, to try faithfully—both in their private and hospital practice—my plan of neutral treatment, and take special data of the comparative results of the common treatment by quinia, and that of sodium, and sodium bicarb., sodium phosphat., sodium sulphide, and sodium chloride; these may be all variously combined, but the great end is neutralization, *per se.*

Should Experiments on Animals be Restricted or Abolished?*

By Robt. Meade Smith, M. D., Professor of Comparative Physiology, University of Pennsylvania.

IN 1876, the agitation which for years had been looking to the abolition of experiments on animals, gained its first decisive point in England in the passage by parliament of what is there known as the "Cruelty to Animals Act." Under the working of this law it is made a criminal offense, punishable by fine and imprisonment, for any one, even the most eminent physiologist, unless hampered by the most senseless restrictions, to perform any experiment which may entail the least possible pain or inconvenience on any vertebrate animal, even if it is known that the most valuable results will follow that experiment. Since then there has been the most astounding zeal to emulate this example of English narrow-mindedness. In New York the introduction and defeat of a similar bill has become a perennial affair, while we in Pennsylvania are threatened with a similar fate by a society expressly organized for preventing physiological progress.

Fortunately the good sense of our governing bodies has so far prevented the passage of any such obstructive law; but the misdirected zeal of the advocates of the prevention of experiment on animals has made converts in nearly all groups of society, excepting only among those who are at all capable of forming any opinion as to the value of the arguments brought forward; and since scientific men and physicians are rarely found in our legislatures, there is no telling when we may be restricted in our attempts to advance the standing of physiology, and thus improve our capabilities of relieving and preventing human and animal suffering.

The only course open to us is to prove to our honest and unprejudiced opponents that they have been imposed upon by the exaggerated statements of professional agitators. This we can do by answering the ever recurring question: What good has been gained by experiments on animals? I will not attempt to prove to you what society to-day does not he sitate to admit, that to apply animals to purposes useful to man is one of the manifest ends of their mutual relationship on the earth; or that almost every advance in our knowledge of the workings of the human body has been gained through vivisection.

Enough has been written in this controversy to demonstrate beyond question that the present status of physiology is almost entirely due to well-directed experiments on animals. What I wish to-day particularly to call attention to, is the fact that the condition of our domestic animals has been largely improved by the very same means.

Whatever improves our capabilities for curing or preventing human disease is nearly always capable of application to the treatment of diseases of animals; for the art of medicine is one, whether applied to man or to the lower animals. Therefore every advance in physiology, surgery, toxicology or pharmacology may ultimately, even if not immediately, serve to improve the condition of the very animals at whose expense they were attained. No attempt, however, will be here made to show how experiments on the lower animals has advanced our knowledge of any of the above branches of the science of medicinc; that has been already done over and over again, and the results of those experiments are, or should be, so well known that to contest them is to lay one's self open to the charge of profound ignorance of a subject on which no diffidence is shown in the expression of opinion; or to the equally serious charge of wilful blindness. All that I will at present attempt to show is that animals themselves have benefited by such studies.

When we artificially produce a disease in animals we are only imitating the processes of nature; but we produce the disordered state of the system in such a way that we are able to follow the various steps of the process much more accurately than is possible in the treatment of similar diseases occurring as the result of natural causes; for it is the mystery which surrounds the origin of diseases which has always proved the most formidable obstacle to their cure. And, moreover, when disease appears in a previously healthy subject, the morbid process is never or rarely noticed until it has obtained a firm foothold on the system. The time has then passed, maybe, when our therapeutic interference can be of any avail.

But when we produce a disease artificially the animal is kept under the closest observation, and the first trivial deviation from the state of health is noticed and may serve as the starting point of treatment which then has every prospect of success. Production of disease in animals bears the same relation to its diagnosis as synthesis does to analysis in chemistry. We may analyze a chemical compound, but we can never be sure of its intimate construction until we are able to reform that compound by recombination of its constituents. For this reason our acquaintance with inorganic chemical compounds is much more complete than with the organic; for the

* An introductory address to the course of lectures on Comparative Physiology.

former may be both decomposed and recomposed while the synthesis of the latter in nearly all cases is yet beyond our powers. We will also see that the diseases which admit of artificial production are the very ones in whose prevention or treatment we are most successful, and that the discovery of the cause and the artificial production of a disease are long steps towards its cure.

Naturally the contagious and infectious diseases, from the great mortality which always attends their appearance, have attracted the most attention. Some of these are peculiar to single species of animals, others are widely transmissible from one group to another, and others are common to both man and the lower animals, and are communicable from the latter to man; such as glanders, rabies, anthrax, foot and mouth disease and tuberculosis, as well as the various parasitic diseases. Until we are familiar with the conditions which produce a disease, and this knowledge is rarely attainable but through the capability of originating that disease, we can never make any decided improvement in treating that disease. All our best-meant efforts will be but aims in the dark, treating symptoms as they arise while the true causus morbi escapes us. This will be abundantly proved when we come to consider the results of the experimental production of the various morbid states. Those which we are able to produce at will, we will find, will be those in which our success in prevention and cure is the most marked; while those which have still eluded all attempts at the isolation of their specific virus are those in which we are most helpless.

The most important discovery that has ever been made in pathology was the recognition of minute vegetable or animal organisms as the cause of different contagious diseases; and how could that discovery be made but through experiment on animals. It had long been known that the blood and secretions of men and animals suffering from the different contagious diseases, were crowded with these organisms (bacilli), but until we were able, by isolating these bacilli and injecting them into the blood of other animals to produce the same disease, we could not be sure that they were actually the causes of the disease, and not mere coincidences; or that they flourished in the blood of such diseased subjects, because that fluid had undergone some subtle change, absent in normal blood and favorable to the vital conditions of those organisms.

But that is not all. Great discovery as it was to be able to isolate the agent of these deadly diseases, it was still more wonderful that in the study of the characters of those organisms we should be able to discover the means by which we could not only rob them of their deadly attributes, but that we could make these organisms themselves serve to prevent the very disease it is their nature to produce. And how could this be determined but by experiments on animals? It was found that by cultivating these organisms in proper nutritive fluids, or by subjecting them to definite degrees of heat, they gradually lost their virulence and even acquired the property of preventing disease.

Many experiments were necessary to establish this. Numerous experiments, entailing the death or disease of the animal experimented on had first to be made to prove that the actual cause of the disease had been isolated. Other experiments were then necessary with the virus in different stages of cultivation (attenuation) to determine when the virulent properties disappeared. The antivivisectionists tell us that all the results of experiments on animals could have been obtained by a hundred different and better methods than by vivisection. In what one other way could we have learned these facts but by experiment? It is unfortunately true that the diseases over which we have acquired such power are but few in number; but the list is a long and rapidly growing one in which we are gradually gaining this mastery over disease. Will it facilitate our progress to obstruct us in the one way in which any valuable results have been obtained. Let me give you one or two illustrations of the truth of this.

Anthrax[1] or splenic fever, known in France as charbon, and in Germany as milzbrand, is one of the most widespread and fatal scourges to which animals, whether in a state of nature or domestication, are liable. It decimates the reindeer herds in the polar regions, and the herds in the tropics, and affects the carefully tended herds of the most highly civilized countries equally with the wandering herds and flocks of the mongol steppes. In fact there is scarcely a region in the entire world where anthrax is unknown. And its antiquity is as great as its distribution is wide. It is described as one of the scourges inflicted on the Egyptians, and Virgil has shown its deadliness and contagion, and alludes to the dangers of the tainted fleeces to mankind, confirming what is now known as to the origin of wool-sorter's disease. But through all this time and in spite of the innumerable volumes and treatises written on this subject, no progress was made in its prevention or cure until its cause was isolated, and the means of its prevention discovered by experiments upon animals. It has now lost all its terrors and we may hope that it will ultimately be eradicated from all civilized quarters of the globe.

The general public cares nothing for any scientific truth for its own sake, but only for the so-called practical benefits to be derived therefrom. And it is well known that men are proverbially indifferent to matters of health as compared with matters which may affect their pecuniary resources. While, therefore, it might be expected that our zealous anti-vivisectionists might regard with incredulity or indifference the fact that the basis of physiology, which, in turn, is the foundation of pathology, rests on experiments on animals, let us only show them that such experiments may save their pockets, and we may have some hope of convincing them of the utility of vivisection. Let me, therefore, give you some idea of the losses inflicted by anthrax.

In one district of France alone (Beaunce) it killed annually 178,000 sheep, which (at only 30 francs a head) meant a loss to their owners of $1,068,000. In 1842, when sheep were much less valuable than at present, the loss in the same district was estimated at $1,416,000. In the district of Chartres, 17,800 sheep perish from this disease every year. In fact, it is estimated that in France alone, sheep to the value of $4,000,000 are lost annually from anthrax.

In Russia, also, the losses are enormous, especially among the cattle. In 1837, in one district alone, 1,900 died of anthrax; and in 1857 it was reported

[1] See article on Vivisection, by G. Fleming, in Nineteenth Century, March 1882, from which part of the following data was obtained.

that in the Russian empire 100,000 horses had perished of this disease. In 1860, 13,104 cattle died out of 18,883, attacked with anthrax; and from the official report of 1864 it appears that in five districts of Russia, 10,000 animals, mostly horses, died of this disease, while 1,000 persons were infected and perished. From the 15th of January to the 27th of March, 1865, 47,000 cattle, 2,543 horses, and 57,844 other domesticated animals were lost in three other Russian districts; and in the Government of Tobolsk, in June and July, 1874, there perished from the "Siberian plague," as anthrax is sometimes designated, 4,735 horses, 516 cattle, 1,030 sheep, 52 pigs, 15 goats, and 106 human beings.

In other countries it is also very prevalent and deadly, and with us the ravages of "Texas fever," which is probably a variety of anthrax, are but too well known.

And now let us look at the benefits conferred on animals, and both directly and indirectly on the human race in this one instance, through experiments on animals. Brauell, the eminent professor at the veterinary school of Dorpat, Russia, was the first to describe the bacilli which have since been proved to be the active agents in the production of anthrax; and the laboratory experiments of Pollender, Delafond, Davaine, Chauveau, Toussaint, and others, but above all of Pasteur, who had already demonstrated the parasitic origin of the silk-worm disease, have perfected our knowledge of the action of the virus, and the means by which its energy may be so attenuated that, when inoculated into healthy animals, instead of destroying them, it only gives rise to, at most, a slight ephemeral disturbance and confers immunity from the disease. At first these results were received with incredulity, but in 1881 Pasteur gave a public demonstration at Melun of the truth of these statements. Fifty sheep and twelve cattle were placed at his disposal; half the number were then inoculated with the cultivated, or attenuated, virus, and fifteen days later all the animals were inoculated with the uncultivated, or deadly, virus. Forty-eight hours later every one of the unprotected animals was dead, while all of the animals which had received the cultivated virus were in perfect health. But this was not all. It had been claimed that the deadly virus was a laboratory product, and, perhaps, not the true essence of the disease, and it was proposed that the anthrax blood, whose deadly effects on man and animals were so well known, should be used as a test of protective inoculation. An official commission was therefore appointed at Chartres to set the matter at rest, and twenty sheep were allowed for the experiments. Similar results were obtained. Those inoculated with the attenuated virus were not in the least affected when they received what would otherwise have been a deadly quantity of anthrax blood, while of those not thus protected all died but one.

"There was no longer any doubt as to the value of protective inoculation, and there was the greatest anxiety to have the flocks in the anthrax-haunted districts protected as soon as possible. Up to October, 1881, 58,900 animals had been inoculated in the proportion of three to five, i. e., 33,576 against 21,938, which were left unprotected to show the difference. Before inoculation the loss in all the flocks had been 2,986. During the inoculation and until the effects effects were complete, 260 died in the group of 33,576 which was being operated on; and during the same time 366 died in the non-inoculated group of 12,938. But when the inoculations were completed, in the first group the mortality fell to 5 and then ceased, while it continued at its usual rate in the non-protected group."

In Hungary, also, Pasteur's process of protective vaccination against anthrax was examined by a royal commission. Ten cattle and sixty sheep were allowed for the experiments; half were vaccinated with attenuated virus, brought from Pasteur's laboratory in Paris to Budapesth, without (except one case that died from clearly distinct cause) producing any visible disturbance of health. All the animals were then inoculated with anthrax spores. Of the protected animals only three died, and of these cases death in two instances was attributed to other causes; none were attacked with anthrax. But of the unprotected animals out of 25 sheep, 23 died within a week, with well pronounced anthrax symptoms in 22, the death in the other cases being due to parasitic disease of the liver. Of the cattle experiments, those unprotected by vaccination were all more or less affected by the anthrax inoculation, though in no case fatally, while the protected animals remained perfectly unaffected.

Similar results were also obtained in Kapuvar. Forty-four protected and fifty unprotected sheep were inoculated with virulent anthrax germs; of the former group three were attacked with anthrax, which was fatal in only one instance; of the fifty unprotected sheep, forty-eight died within four days, of anthrax.

Were these results the only points born of this method of experiment, its value could not be overestimated. But anthrax is only a single example of what has already been accomplished. In many other cases nearly as valuable and decided results have already been obtained, and in others, if the anti-vivisectionists do not have their way, we have every hope of soon acquiring as great power as we already possess in the case of anthrax.

[*To be continued.*]

Eye and Ear Diseases, Associated with Other Affections.

By W. E. Scott, M. D., Springfield, Mo.

THE fact that general practitioners of medicine, who usually give too little attention to eye and ear diseases, only too readily follow the tendency of specialists in treating them as local affections, must serve as my apology for presuming to call the attention of medical men to truths which seem to be ignored. The people at large, imitating the usual practice, in many cases exhaust the routine of patent eye-preparations, followed by an assortment of "sure cures" which sympathizing friends recommend, before seeking skilled advice. And when they do seek such treatment, many are surprised if their prescriptions are for anything else than some local application. Many will tell you, on their first visit, they want some eye-water, and seem to expect nothing else. A venerable sufferer amused me highly by stepping into my office one morning, and enquiring if he could "get some of that there eye-juice." Many think, with the speculative "Colonel Sellers," if I could but discover the one missing ingredient for my eye-

water, I could cure the countless millions of sore eyes, and my fortune would be made. Like the alchemists of old seeking to discover the missing ingredient by which iron could be cured of its baseness, and be turned to beautiful, shining gold—so do the credulous seek that "ignis fatuis" which is to be the specific for sore eyes.

The natural tendency of all non-malignant diseases is to recovery, even without medication. In fact, many robust constitutions resist the combined forces of medicine and disease, and anchor safely in the harbor of health. All medical men have seen such cases. We argue, then, if a man having trouble with his eyes, uses a certain preparation and gets well, it is by no means certain that the medicine did the work. In the light of this, there are many people whose eyes get well after using patent medicines for varied periods of time, but the great majority who use them are not cured, and not a small number are made worse—to say nothing of the many who have bitter cause to regret the loss of valuable time spent in this form of cheap medication, and permitting their cases to get beyond the skill of even the most learned in the profession. Similar assertions can be made concerning certain remedies which are used empirically by those whose education and experience should have taught them better. In the city of New York, where we may expect to find the most skillful men, the sulphate of copper is the sovereign remedy for granulated lids. I have spent months in attending the eye clinics there, have seen hundreds of cases treated in this way, and rarely saw one which had been benefitted. I questioned many of those unfortunate people, and their replies—which more than corroborated my ideas based on observation—but confirmed my judgment of condemnation of the practice. Some had been treated from two to five years on this plan, changing from one institution to another, almost disheartened by previous failures, and still hoping for something better. How many who have been subjected to such treatment have given up all hope of success, and have condemned themselves forever to an afflicted existence, believing all skill of no avail and medicine a humbug?

In one of our western cities the nitrate of silver in varying strengths is the eureka of the specialists for the same affection. In another they are partial to preparations of lead. In still another I heard an eminent oculist, in his official position as professor in a leading medical college, proclaim with emphasis to his students and associates: "Of all the remedies used in treating diseases of the eye, none have done so little good and such infinite harm as lead, silver and poultices. I warn you *never* to use them!" I have seen many eyes, the vision of which was dimmed by scars, resulting from deposits of lead and silver on the cornea. I have also seen many cases which had benefitted by these preparations used by discriminating men. Such diverse opinions among the leaders can but have a baneful influence among their followers in general practice. Not long since a practitioner who treats many cases of eye diseases, and who is called an oculist by his fellow townsmen, but who never received the rudiments of a common medical education, asked my opinion about two cases he had on hand. He said he could "take off the granulations from the lids in a *few hours*, but they would not stay off." I told him there was some cause or complication which would have to be found and removed, and expressed an unfavorable opinion on any treatment that would do as he said. He said he "guessed there must be something of that kind, and he would look into it at once." It is the custom of the good-natured and well-meaning practitioner to sometimes remark: "I am no specialist of eye diseases, don't make any pretensions to be an oculist, but I treat these cases of common sore eyes." So do many who do not pretend to a medical education, and with some degree of success. Anybody can *treat* any disease. The question is do they succeed in their practice?

The medical journals are liberally supplied with articles on these subjects, and many remedies which have been observed to have a good effect on certain classes of cases are vaunted as specifics. Believing the seemingly good testimony which is ever being brought forward, and desirous of seeing such results, the general practitioner tries them, neglecting the precaution which he uses so well when dealing with more familiar diseases, that of removing causes and complications. I do not say these words in a tone of censure, for it would be but ill deserved. I do but try to point out a few errors—for it is by mistakes that the world grows wiser.

The great majority of general practitioners are necessarily compelled to treat such cases because they are so far removed from the specialist, and cannot secure his services. There is only a small minority who refuse his aid because they do not like to admit their inferiority in any branch of medicine, or similar motives.

It being an undisputed fact that the majority of practitioners necessarily have to treat such cases, for the sake of suffering humanity, and to aid the credit of the profession to which they claim allegiance, let them not trust to the unsafe specifics in common use, but treat them understandingly in the light of the cause. In the majority of these cases it is to be found, and must be removed if dismal failure would not often crown the attempt. Local medication is a necessary element in the treatment of the majority of all such cases, but it should be looked upon as a part and not the whole of a treatment. Local diseases of the eye and ear, barring cases of injury, are rare as compared with those caused by or in part dependent on constitutional trouble. Acute catarrhal conjunctivitis is a disease which but seldom receives other treatment than an astringent local application. This disease bears about the same relation to the eye that "coryza," or a "common cold," does to the nose. In coryza there are few who attempt to treat the disease by astringent local applications, but resort to constitutional treatment almost entirely. Why this distinction other, than because perhaps it might be termed fashion? In phlyctenular conjunctivitis, or the so-called scrofulous ophthalmia of children, the bad results, the failures, are not due to absence of mercurial ointment and powdered calomel, the specifics which are ordinarily used, but because it was treated as a local affection, and the cause remained in full force. Chronic inflammation of the lining and margin of the lids, though sometimes due to local trouble, is more often due to alcoholic stimulants and other general disturbances in the system. Granulated lids, that common complaint which afflicts nearly all classes of people in nearly all sections, rarely exists in a person otherwise free from disease. It has not been my experience to find

a single one, and yet this is *the* disease which is so generally treated alone by local means. Certain forms of corneal inflammation are local troubles, requiring local treatment; yet the syphilitic taint, which is the cause, and which affects the entire constitution, should receive its proper share of attention. Certain forms of corneal ulcers have, as a cause, an irritable condition of the nose and nasal duct; others are always associated with constipation. These complications can readily be discovered if the examination is as thorough as it should be. Iritis, which is so damaging to the eye unless proper local treatment is speedily used, and which is so often treated as a simple conjunctivitis by poor diagnosticians, is commonly due to constitutional diseases such as syphilis and rheumatism, muscæ volitantes, or floating spots before the eyes, although many times due to opacities in the interior of the eye, as may be determined by the ophthalmoscope, is often due to a disordered stomach. Retinitis apoplectica, which is diagnosed by the ophthalmoscope, is usually the local manifestation of the weakened condition of the cerebral blood vessels. I remember, when a student under Dr. Knapp, of New York, the case of Backus, the celebrated minstrel. After a careful examination, he informed us that Backus had this trouble, and predicted his death in less than two years. He warned him of his danger, and advised him to change his occupation. His death was chronicled in the papers in little more than a year after the consultation.

Exophthalmic goitre is a disease where the most prominent symptom is a protrusion of the eye, and the learned Dr. Graves, for whom it is named, showed its dependence on a disease of the heart. The various forms of paralysis affecting the structures of the eye are, of course, due to nerve lesions, and are not to be considered as local troubles. The discovery of the ophthalmoscope, an instrument by means of which the interior of the eye can be examined with almost as much accuracy as the exterior, opened up a new field, which more clearly illustrated the relation of the eye to other parts. Bright's retinitis is a typical illustration of this point. Many cases of kidney disease have been diagnosed by an examination of the eye before anything was known as to the real seat of the trouble, and many a suspicion verified by finding the proof in the eye. The eye disease is not always present in Bright's nephritis, but when found we certainly expect it. The condition of the pupil of the eye is a symptom of considerable importance in all cases of blood poisoning, in fractures of the skull and in many cases of acute and chronic constitutional diseases. As diseases of the eye may depend on other affections, so may vertigo, headache and neuralgia have as a cause some defect in the eyes.

The error of refraction known as hypermetropia or far-sightedness, which causes and complicates several other eye troubles, is a common affection, and plays an important part in the causation of many cases of headache, which, of course, resists the attempts at relief by the ordinary treatment. There are many such cases which have existed from one to twenty years, and have been relieved in a few days when the cause was found and proper glasses adjusted. I have had cases which came under my care believing themselves to be afflicted with optic nerve trouble, which were readily relieved by glasses. Astigmatism is a similar trouble and causes similar complications. The so-called neuralgia of the eye is often due to these troubles, and again to that fatal disease of the eye, glaucoma.

While there is not such a number of well-defined diseases of the ear as of the eye, and they are not nearly so frequently associated with remote affections, there is a large percentage of cases which have as their origin, diseases of the naso-pharynx. By extension through the eustachian tube catarrha affections invade the middle ear, and in this way cause a large percentage of these cases.

Defective teeth have caused many aches and troubles in the ear, which have failed to respond to that unscientific remedy, sweet oil and laudanum.

Many of the cases of "otorrhœa," or running ear, so often termed scrofulous, are in great part due to errors in diet, and unhygienic surroundings. Noises in the ear, although more often a symptom of disease in the middle ear, sometimes depends on a disordered stomach. Nearly all cases of chronic inflammatory diseases of the eye and ear are unfavorably influenced by "taking cold," and the majority of such cases exist in persons who are easy subjects of such influences. It is the custom of our homœopathic friends to treat symptoms. It was forcibly impressed on my mind, as a student, to remove the cause of the disease. Would it be too much to hope that this paper may remind some one of his student-life, when he received the same instruction from his teacher, but which has grown rusty by the lapse of years?

Sarco-Peptones.—Phosphoric Acid as a Test for Albumin.

By H. B. Millard, M. D., New York City.

Sarco-peptones.—Absence from the country prevented my seeing until recently the interesting article by Dr. Tangeman, in the July number of the Gazette on sarco-peptones. It is, however, erroneous as regards his comprehension of Dr. Debove's theory and practice of the use of powdered beef, and he is entirely unjustified in stating that "the meat powder cannot well be given to patients on account of its sickening taste," and that "no matter how it is disguised or prepared it will cause nausea." In the first place, Dr. Debove's idea is to supernourish (*sur-alimenter*) the system, with the powder of beef. He does not resort always to alimentation by the sound, but only in such cases in which large quantities of the powder cannot be taken without it; by the œsophageal tube or sound as much as 400 to 600 grammes of the powder have been given daily, the latter quantity being equivalent to about five pounds of beef. The tube is employed also in cases of excessive irritability of the stomach when nothing *swallowed* can be retained. In many cases there will be extreme nausea upon the prehension of food or drink, but large quantities of certain aliments introduced into the stomach by the tube will be digested without nausea. The *poudre de viande* is used in the Paris hospitals for super-alimentation, and in other cases, as hysterical vomiting, ulcer of the stomach, etc., it is used with and without the tube. A valu-

able work by Dr. Amanieux* advocates its employment entirely *without* the tube, and shows that in most cases this can be effected. As to the "sickening taste" of the powder, "no matter how it is disguised or prepared," I would say that Favret's *poudre de viande*, prepared by Ferré, and imported by Fougera & Co., the only kind I believe employed in the Paris hospitals, is entirely tasteless and odorless. Properly mixed with milk or hot water, and flavored with vanilla, angostura bitters, brandy, or whatever is most agreeable, it is in no way disagreeable or repulsive. But *care* must be taken in preparing it, nor must it be given at first by direct administration, except in small doses. Again, "powdered meat" may include anything vile. This summer Ferré showed me samples of all the various powders advertised in Paris, and with the exception of his own, they were bad-smelling and repulsive; some of them which had remained open for a considerable time contained animalculæ. To extract all fat and tendon, to dry and reduce the beef to an impalpable powder, without taste or odor, that will keep indefinitely, is a task not easy of achievement, and I know no one but Ferre thus far who has succeeded. I am competent to speak intelligently upon this subject, as last year I passed considerable time with Dr. Debove, observing with him at the hospital of La Pitie the mode and effect of his treatment, and afterwards employing his powder and method at home. The past summer, also, I made several visits with him to the hôpital des Tournelles, and saw the effect of treatment there. My own experience, and it has now been considerable, has been entirely confirmatory of Dr. Debove's. The use of the powder properly is, however, a science, and not a coarse measure of therapeutics. Under the best of circumstances it may fail. A full exposition of the experience of Debove, Dujardin-Beaumetz, Amanieux, and others, together with my own, with an account of the method of administration with and without the tube, etc., may be found in a paper contributed by me to the New York Medical Journal, April 19 and 26 and May 10, 1884 (*super-alimentation*, artificial alimentation, and the employment of alimentary powder, according to the method of Dr. Debove).

Of the Rudisch beef peptones I have the highest opinion, using them extensively in my practice in conditions of anæmia, impaired and feeble digestion, and often when the stomach rejects other nourishment. They are among the very limited number of advertised nutritive preparations that I regard of value.

Phosphoric Acid as a Test for Albumin.—In reference to this test so highly lauded by Dr. A. F. Reid, in the GAZETTE of July, I would say that it is unreliable because it produces a cloudiness or precipitate with the parapeptones as well as with albumin. The same, indeed, is true or Tanret's test, with, however, this vital difference, that the cloudiness produced by the latter with the parapeptones clears up on the application of heat; the cloudiness or precipitate produced by it with albumin, is not affected by heat; although the reaction produced by albumin with phosphoric acid does not disappear by heat, that produced with the parapeptones does, either entirely or partially.

*De la poudre de viande son administration directe. Ses effets. Paris, 1883.

It is impossible, therefore, to be certain with this test whether you have serum albumin or some other proteid. The same objections exist to terchloracetic acid, picric acid, and Robert's brine test, all of which like the metaphosphoric acid, are sensitive tests of albumin, but likewise of parapeptones; to decide which you have by these tests is often impossible.

In an article by myself in the Medical Record of May 31st, 1884, the value of the various reagents for the detection of albumin is very fully considered, and I would say that my own modification of Mehu's test, phenic and acetic acid with liquor potassæ, seems to me, after extended trials, to be perfectly accurate, and certainly sensitive enough, as my experiments have shown me that it will detect one part of artificially prepared fluid albumen in 300,000 parts of water.

My formula is:

℞. Acid. phenic. glacial. (95%) ʒ ij.
Acid. acet. puri, ʒ vij.
Add liquor potassæ, ℥ ij. ʒ vj.
M.

It is important that the glacial carbolic acid should be used, or the mixture, which should be quite clear, will be turbid.

This test is at least as sensitive as Tanret's, and produces no reaction other than with albumin that may not be readily accounted for.

No. 4 East 41st street.

Boldo—Corn Silk—Cascara Cordial.

By G. V. R. MERRILL, M. D., ELMIRA, N. Y.

IN THE "Working Bulletin" of boldoa fragrans received a year ago from Parke, Davis & Co., I noticed in a report from Dr. Semple, of New Liberty, Ill., published in the THERAPEUTIC GAZETTE for July, 1881, this paragraph:

"So now, when a case of dyspepsia presents itself, I have no trouble in thinking up remedies to meet either the indications or complications, but put it on boldo with a sanguine anticipation of the benefit that is sure to be derived from its use."

This statement was regarded by me as decidedly rose-colored, justified, perhaps, by the success realized in the cases cited, but still to be received *cum grano salis*. Nevertheless, having at that time several old cases on hand that had been sources of considerable perplexity, having been subject to the changes usual in such cases, embracing alkalies, acids, vegetable and mineral tonics, alteratives, and the like, without material benefit, I decided to give boldo a trial. I might detail the results, but think likely generalization will answer all practical purposes

So far, then, I have used it in about thirty cases. In the larger number the dyspeptic troubles were sympathetic of, or associated with, uterine or ovarian disease. Eight or nine were cases of atonic dyspepsia, with more or less torpidity of the liver, anorexia, furred tongue, constipation, flatulence, and gastric distress. In one of the latter class the boldo did not agree, but added to the distress, even in minimum doses, and was discontinued. In all the others the relief was prompt, and in every way satisfactory, many of the patients making special mention of the rapidity with which they were benefitted.

In administration I generally combine the boldo with some other alcoholic extract according to the indication of the case, flavor with wintergreen, and make the dose to contain five minims of the former. I have never given more than that amount, and have seldom found it necessary or desirable to reduce the dose. Of course, other remedies are also frequently required, but my experience leads me to join heartily with Dr. S. in the language above quoted.

Corn silk is another remedy that merits general recognition and use. In irritability of the neck of the bladder, so frequently met with in women who have passed the climacteric, it often "acts like a charm," and in all cases of irritation of the urinary passages its use will prove its value.

A somewhat limited experience in the use of cascara cordial confirms the favorable reports heretofore made, but especially has it been helpful to me in combatting the constipation of infants and very young children. Every practitioner must at times have had his patience tried to the utmost in endeavors to find something that would keep the baby's bowels open, without having constantly to resort to the use of cathartics, or be in daily bondage to the syringe. One case in point:

In May last I was called to see a child, six weeks old, that had been constipated from the first week of its birth. The parents at first gave it domestic remedies without benefit. A physician was called, who prescribed castor oil, and advised the subsequent use of magnesia. The child grew no better. Other remedies were given with like result. Finally the syringe was adopted as the only resource, and even then it was often necessary to pick away the dry and impacted fæces. The child was small, weak and puny, and had that old, shriveled look so distressing to see in young children. Although poorly nourished, it nursed eagerly, and had an abundant supply of good milk. The stomach seemed to be all right, and when overtaxed would reject its contents. The child suffered much from flatulence and colicky pains, crying most of the time when awake, and frequently until completely exhausted. The mother was worn out, the friends tired beyond endurance, and the prospect for the child poor enough. For immediate relief use was made of Hoffman's anodyne and warm baths. Direction was then given for the administration of small doses of lacto-pepsine after nursing, and one drop of cascara cordial every three hours during the day, the use of the syringe to be continued for a while. On the third day the bowels moved without external aid. From this time on the gain was steady, although the syringe was not entirely dispensed with for nearly two weeks. After the first week the lacto-peptine was discontinued, and the cascara reduced to three times a day, at which rate it was continued about two weeks longer. The baby is now a fat, healthy, good-natured child, and has not been troubled with constipation since the cascara was dropped.

Medico-Legal Decisions

Reported by Henry A. Riley, Esq., New York City.

Damages for Communicating Whooping Cough.—In a case recently tried in the United States Circuit Court, at New York, damages were asked against a person because he had taken his children to a boarding house, when they were sick with the whooping-cough. The child of the proprietor took the disease in this way, and some of the boarders left the house and went elsewhere. The court held that damages must be awarded for whatever loss resulted from the bringing of the disease to the house. The opinion of the judge is in part as follows: "The defendant took his children when they had whooping-cough, a contagious disease, to the boarding house of the plaintiff to board, and exposed her child and children of the other boarders to it, who took it.

The jury have found that this was done without exercising due care to prevent taking the disease into the boarding house. She was put to expense, care and labor in consequence of her child having it, and boarders were kept away by the presence of it, whereby she lost profits. Words which import the charge of having a contagious distemper are in themselves actionable, because prudent people will avoid the company of persons having such distemper. The carrying of persons infected with contagious disease along public thoroughfares, so as to endanger the health of other travelers, is indictable as a nuisance."

Rights of Legislatures Over Health Questions.—A recent decision in a suit before the United States Supreme Court, is of extreme importance, as relating to the exclusive rights of a State Legislature over all questions affecting the public health or public morals. In this case a company had secured from the Louisiana Legislature the exclusive right to carry on the business of slaughtering within a certain district in the city of New Orleans. Subsequent to this act a new constitution was adopted by the citizens of Louisiana, and shortly afterwards the Legislature repealed the act giving the exclusive right of slaughtering to the single company. A large capital had been invested in the business, in part, at least, upon the idea that the company had a valuable monopoly, granted by law. A suit was immediately begun on behalf of the company, in the United States Courts, on the ground that the action of the legislature was in violation of the Federal constitution, which forbade a State from passing laws impairing the obligation of contracts. It was claimed that the act of the Legislature in favor of the company, was such a contract as was contemplated by the Constitution. The case attracted some attention in its progress through the Courts, and the principle now reiterated by the Supreme Court is of great importance. The Court holds that no Legislature has a right to pass such a law, or make such a contract as will prevent a subsequent Legislature from modifying or repealing it on grounds of public health. The Legislature, in other words, cannot part, by any act however solemn, with its sovereign right to legislate for the health of community. This being the case the original act was void, so far as it attempted to create an eternal monopoly. It was said in one case that "No Legislature can bargain away the public health or the public morals. The people themselves cannot do it, much less their servants." This decision seems to settle conclusively the right of legislatures to pass all needful laws for the improvement of sanitary regulations, notwithstanding the fact that private interests may thereby be injured.

The United States Medical College not Legally Incorporated.—The New York Court of Appeals has recently decided that the United States Medical College

of the City of New York is not legally incorporated. This is the institution upon which an energetic warfare has been waged by the New York County Medical Society, because of the irregular way in which it was issuing its diplomas. It was also charged that the college was selling its degrees, and thus foisting a large number of incompetent peasons upon the profession. The college made an effort to get an act through the legislature legalizing its degrees, but this act did not accomplish what it was intended to, in the opinion of the Court of Appeals. What further action the college will take, or whether it was disbarred, remains to be seen.

Simaba Cedron, A Cure for Hydrophobia.

BY GEORGE VAILLANT, M. D., PH. D., NEW YORK CITY.

AS there has been so much said and written about the incurability of hydrophobia, I should be much pleased if you would accord me some space to express my experience with a remedy for said disease.

Simaba cedron is the seed of a fruit of a small South-American tree (Nat. ord. Simarubaceæ) somewhat resembling an almond tree. All parts of the tree are said to be impregnated with the bitter principle peculiar to the seed, but the latter is the only part used in medicine. The seed is about the size of a cashewnut, convex on one side, flat or slightly concave on the other; externally: blackish and rough, hard and compact, but may be cut with a knife; internally: a dingy yellow, with a metallic lustre, when cut, inodorous and excessively bitter.

Chemical constituents: The seeds contain an intensely bitter, crystalline substance, soluble in boiling water, neutral to test-paper, named cedron.

In California and in the South-west it is used by hunters and trappers as an antidote to the poison of crotalus and other venomous serpents, by binding shavings of the seed, moistened with whiskey, upon the wound, and chewing a small portion. It seems to antidote all animal poisons, as it has been used in a number of cases of hydrophobia successfully, even after the spasms had become frightfully severe.

Three years ago I was called to attend a little boy named Charlie Hœffner, who, according to his mother's statement, was bitten by a mad dog three weeks previous to his taking sick. When I reached his bedside the boy was in fearful agony, howling and producing all sorts of indescribable sounds. After the minutest inquiries and careful examinations, I diagnosed the case as genuine hydrophobia. Knowing I could not get this medicine (cedron) in any of the drug-stores near by, I hurried home and procured a small quantity of it (about a drachm, ʒ j) and used it hypodermically and per os. In less than twenty minutes after its administration, my patient became quiet, and, although watching him very closely for about five hours, there were no symptoms of recurrence of this dreadful malady. Visited him next day; found his mind clear and having recuperated from his nervous prostration. On the third day I examined him thoroughly, and to my utter astonishment I discovered a large sore, resembling a phagadenic ulcer, discharging a tenacious dark-yellow pus of a very offensive odor.

I think this purulent secretion, which was possibly produced by cedron, saved the boy. The patient recovered after a week's treatment and has not been ailing since.

Furthermore, I should like to state that I experimented with the pus secreted from the wound of the boy mentioned. I inoculated a tremendous big tomcat with said pus, at 3:00 o'clock in the afternoon; he developed all the horrible symptoms of hydrophobia until he died in the terrific convulsions at 4:30 o'clock next morning, I having watched him very attentively, even to the risk of my own life.

Case 2. While I was rusticating at Saratoga, last summer, I was summoned, in consultation, to the bedside of a young lady, who was bitten by a pet dog five months previously. When I entered her room she was barking and snarling in the most vicious manner at those surrounding her. My diagnosis as true hydrophobia was endorsed by the other five physicians present during the consultation. I gave directions how to use "cedron" hypodermically, as it was utterly impossible to administer it per os. She recovered the same as my first patient.

It would be well for Mons. Pasteur and other scientific experimentalists to give this really wonder-remedy a fair trial, before inoculating any human being with the rabid virus.

442 W. 24th STREET.

Erysipelas Treated With Jaborandi.

BY SIDNEY THOMPSON, M. D., KERRVILLE, TENN.

I HAVE for several years been treating erysipelas with jaborandi, and with such entire satisfaction that I think it will be not altogether out of place for me to call the attention of the profession to my results. So far as I know there is no literature on the subject. I use the fld. ext. jaborandi locally, and usually in the following prescription, to-wit:

℞ Jaborandi fl. ext., gm. 24.0.
Glycerine, 4.0.
Laudanum, 4.0.

M. Sig.: Paint with a feather every four hours.

The glycerine I find necessary as the jaborandi has a tendency to produce a desquamation if used alone; the laudanum is added simply to relieve pain. I will cite one case treated with the jaborandi, and in selecting this one I think I can represent my average results:

J. J.; girl; white; age 15. I was called January 30, 1884, to see this young lady, who had then been confined to her bed about forty-eight hours with erysipelas of the face, which was rapidly spreading. It had begun on the upper lip and had now extended over the entire face and was invading the scalp. It had also spread over the upper part of the chest nearly to the nipples. Her face was badly swollen, so much so that she could scarcely open her eyes, and altogether she presented a fearful picture. I gave her a dose of calomel for a coated tongue, and as her pulse was full and rapid I gave her aconite. Locally I used fld. ext. jaborandi, uncombined, for the first twelve hours. By this time the inflammation had ceased to spread, and as desquamation had already begun, I added glycerine, and continued the application for about three days, by which time no trace of the disease remained. As there was very

little pain in this case I did not use the laudanum, but I generally find it necessary.

After the first twelve hours I discontinued the aconite, and from that time on did not give any medicines internally.

I have treated in all about twelve cases in this way, and have several times seen the spread of the disease stopped when it defied everything else. I have never found it necessary after beginning this treatment to resort to anything else.

Translations.

[All articles signed "T" are translated for THE THERAPEUTIC GAZETTE by C. W. Tangeman, M. D., Cincinnati.]

Urinalysis.—Urine reagent paper.

The following is a method of examining urine for clinical purposes at the bedside. It is convenient, cleanly, and has the advantage of being made while the physician is visiting the patient. Some method of this kind cannot but be very acceptable to the profession of Austria since until now all analyses of urine have been made by the apothecary. Urinalysis has been recognized as one of the most important aids in the diagnosis of some diseases, but many busy practitioners do not find time for this branch of chemistry, nor can the physician always carry with him all the utensils that are required to make an examination at the bedside. There are numerous quantitative and qualitative tests than do not require any great skill or knowledge of chemistry, but still they are of value to clear up the diagnosis and assist in treating the patient. It might almost be considered criminal in the physician who neglects it. The apparatus that is required to make these examinations is very simple, and becomes more so from year to year, the purpose being to bring it within the reach of the very busy as well as those who are less well informed. The only apparatus that is needed to carry out the test according to the newest methods is a urinometer and one or two eprouettes. Quantitative examinations will require something with which to make measurements; sometimes a pipette can be made to answer.

The greatest drawback to the physician until now has been that in order to make these examinations, certain caustic and corrosive reagents are required that could not conveniently be carried to the bedside of every patient. Chemists have recently found substitutes for the liquid reagents, which are quite desirable, since not unfrequently a few drops would be spilled and destroy the clothes, if the bottle was carried in the pocket. By the substitution of citric acid for hydrochloric acid in the preparation of the reagent it becomes a solid, so it may be carried around in the pocket in a dry condition.

The procedure may be made more simple still. Every household has chloride of sodium. With the specimen of urine to be examined a saturated solution of chloride of sodium is made and a small crystal of citric acid is added, when the albumen is precipitated. It is desirable to employ a pure preparation of chloride of sodium and citric acid. Dr. C. W. Purdy published a valuable article in the Journal of the American Medical Association, in which he describes the use of reagents that have the great advantage of being ready to dissolve when they are ready for use. In this form they can be carried in the medicine case or vest pocket of the physician. But a few months since Dr. G. Oliver struck on the happy thought of inventing something still more novel, namely, to impregnate strips of paper with the various reagents and put them into a suitable case for the physician to carry them with him continually. These pocket cases are beautifully put up by the firm of Parke, Davis & Co. They contain the important neutral litmus paper, which may be employed to show whether the urine is acid or alkaline in reaction.

For the test of albumen it contains the lately introduced reagents whose sterling value cannot be overestimated: 1. "Pikrin Säure; 2. "Kaliumquecksilberjodid;" "Kaliumferrocyanids;" "Natriumwolframat." These reagents are to be used in combination with citric acid. The procedure is about as follows: A small strip of paper saturated with citric acid is placed into a beaker containing about 30 drops of urine and the necessary acid; a strip of paper impregnated with one of the albumen reagents is now placed into the solution. As soon as the reagent dissolves in the urine containing albumen it becomes murky. The denser the coagula, the larger the percentage of albumen. To this test the objection has been raised that, not only do peptones and albumen cause a deposit, but if a vegetable alkaloid is present it would also cause a similar reaction. The first two reagents also cause a precipitate to appear in the urine of patients who have been taking quinine. In response to this objection it can be said that nearly all conclusions after chemical analyses may be faulty, if the individual making the examination is not a competent person. This can even be said of the older methods of examination. If picric acid causes a precipitate in the urine of an individual taking quinine, and the same result follows the use of the other three reagents, it may be taken for granted that albumen is present, but if there is only a precipitate following the reaction of certain agents, then the test cannot be conclusive. If in a particular instance it becomes necessary to have any doubt as to the reaction, the alkaloid may be separated from the urine before beginning the test, but this always requires so much chemistry that the method cannot be recommended to the physician.

The liquid may be rendered alkaline by means of caustic potash and mixed with one fourth the volume of chloroform. This must be done carefully, otherwise a permanent emulsion may be formed. If the vessle is allowed to remain quiet for a little time, the chloroform separates and carries with it quite a good deal of the alkali. The watery solution is now decanted, and if necessary, again treated with chloroform; if a precipitate occurs after this treatment, even though an alkaloid is present, it is due to albumen if heat will not dissolve it. It is always advisable to employ heat in doubtful cases. For the determination of sugar, the collection of P., D. & Co.'s contains: 1st. A modification of the ordinary copper test. 2d. Picric acid in combination with carbonate of sodium. The copper reaction with copper paper is not as sensitive as the ordinary test where caustic potash is used; if it seems necessary, a solution of potash or soda may be added to make

the copper paper more sensitive. It seldom becomes necessary for the physician to use anything more than the ordinary paper to make a diagnosis of glycosuria. Picric acid is a comparatively new reagent, and is known to be very sensitive. It is a modification of "Moore's" method of examination. The presence of sugar is shown by the dark color the liquid takes on when it is boiled a little while. It certainly cannot but be of interest to the reader that we called attention to these various methods of examination, while we are quite certain before long the method of examining urine by reaction papers will become an indispensable procedure to the physician, where an easy and rapid examination of the urine at the bedside is desirable.—*Pharmaceut. Post.* T.

The Menthol Plant—Menthol and the Menthol or Migraine Pencil.

The various pharmaceutical journals continually and repeatedly give the botanical name of the plant yielding menthol, as menthol arvensis, var. purpurascens. This is an error according to Holmes, and should be corrected before the plant is generally known as such. Works on materia medica claim that the commercial menthol is obtained from the plant mentha arvensis var. Japanica Bl., but H. has found that the leaves of this plant taste like the common garden mint, mentha viridis, therefore menthol and Japanese peppermint oil cannot be obtained from this plant. Christy obtained the genuine plants yielding Japanese peppermint oil and cultivated them at Malvern House, Sydenham, and when in bloom, Holmes tested them. They differed from the mentha arvensis in taste and appearance and construction of the leaves. Tranchet, now the greatest authority on plants, was of the same opinion, that this plant required a separate name. Malinvaud, a recognized authority on mentha suggested the name piperaccus, and H. in his article describes the plant as mentha arvensis var. piperascens; this name should be retained by all. The plant has green leaves without a trace of purpur, therefore should not be called purpurascens. The Japanese variety is a rapidly-growing, healthy plant, just as readily cultivated as the English variety. The growing increase in the demand for menthol, and the small quantity obtained from the English peppermint, forces us to the conclusion that instead of importing menthol from Japan it will be far cheaper to cultivate the Japanese plant here.

Todd, of Michigan, prepares a menthol according to a peculiar method, of a white shiny appearance, consisting of long elastic needles, and that from the American peppermint oil. At present large quantities of the cheap peppermint is exported to England from the United States. The preparations called migraine pencils consist of an oval-shaped piece of menthol enclosed in a capsule of wood which is to hinder it from a too rapid evaporation and prevent it from breaking. In the better preparations it is mixed with eucalyptus and in the cheaper varieties it is mixed with ordinary camphor. The pencil is rubbed over the painful region, which at first causes a sense of burning but soon disappears. Camman in 1883 first called attention in the Medical Record to the property of menthol to deaden or benumb the pain of neuralgia, but he employed it in an alcoholic solution. The pencils have the preference over the solution inasmuch as they can be carried around more easily, and that the vapor does not irritate the eyes of the patient so readily as when used in solution. Long before the nature and source of menthol were known it was prized as a valuable remedy against neuralgia under the name of Po-ho-yo, put up in small bottles with Chinese signatures. Menthol, when pure, will melt at a temperature of 36° C. Menthol has been adulterated with glauber salts, the crystals of which are somewhat similar, but they are insoluble in alcohol and chloroform, while menthol is quite readily soluble. Menthol is not easily soluble in water but imparts a taste and marked smell to it. In mild neuralgias of the face this drug is quite efficient and reliable. In many painful affections due to inflammatory processes, for example in inflammation of the glands of the neck so frequently accompanying inflammation of the throat. The topical action of menthol can be compared to aconite, only that it is not poisonous. Menthol seems to be absolutely powerless in severe chronic neuralgia or typical migraine.—*Pharm. Post.* T.

The Treatment of Cholera at the Marine Hospital of Toulon.

The plan of treatment varied according to the degree of severity of the disease. The difference was made on the following grounds:

1. The cholera-like discharges, or mild cholera.
2. The symptoms a little more severe.
3. The very severe cases.

I. The cholera-like discharges were controlled by opiates; 10 to 15 drops of opium, or opium mixed in a mixture of starch and water, which is used as an injection. In most cases ether or extract ratanhia, was given in combination with opium in the following manner: Ether 1.0, laudanum 15 to 20 gtt., ratanhia 1.0, syr. cort aur, 30., aqua melissæ 120.0. When the discharges and vomiting have ceased, and the irritation of the bowel continued, columbo wine and syr. cort. aur. was given. Bismuth subnitrate, with or without opiates, was also frequently used to control vomiting and diarrhœa. If the spasms were severe, tr. castania was added to the ether and opium.

II. The second class of cases were treated about the same with reference to the bowels; besides, as a drink, warmed wine, and small doses of opium were given, with very good results. Vomiting was controlled by iced carbonic acid water. The spasms were controlled mainly by dry friction with flannel, or moistening the surface with tr. camphor, alcohol, opodeldoc, terebinth essence, or chloroform, subcutaneous injections of morphine and atropine, separately or in combination, proved quite valuable. When these remedies failed to relieve the spasms local injections of ether often relieved the contraction. If the stage of chilliness had already set in, many, if not all of these remedies were inert.

III. Severe cholera, we might say, presents itself to us in two forms:

1. The asphyxia form, or the stage where the patient gets icy cold; at the same time there is a high degree of cyanosis, as in carbonic acid gas poisoning.
2. The form in which there is no asphyxia the pa-

tient has a sallow appearance of the skin; the finger nails become quite blue, but the body retains a certain amount of heat, with a small but perceptible pulse. This form has often deceived the physician where a favorable prognosis was made, and the patient suddenly ended by developing a typhoid fever. In the form where asphyxia and cyanosis are prominent symptoms, little or no attention need be paid to the stools, for they have already ceased, but here the patient must be warmed, the temperature increased, and stimulation of the heart to increased action. In this class of cases injections of ether were largely employed, often once an hour, but the results were not very encouraging. Opium, formerly so much praised in this type of the disease, is certainly contraindicated since it produces somnolence, and in many instances the patient is already comatose. Hypodermic injections of morphia given with a view to stimulate the heart's action, often caused the weakened pulse to disappear entirely. On account of the failure of opiates to give relief, I began the use of atropine, at first in 0.0005 doses, then 0.001, four to five times in twenty-four hours. These injections were made in the epigastric region. Ten minutes later the heart's action increased, the pulse was better, and the temperature increased.—*Bull. Gen. de Therapeutique.* T.

Examination of the Vaseline Preparations.

There are a number of vaseline preparations in the market at the present time, and of these there are five commonly in use, vaseline, cosmoline, densoline, petrolina, and petrolatum. Densoline is the lightest in color, then follows petrolatum, petrolina, and finally cosmoline which is the darkest.

By heating these preparations a peculiar odor is developed, which is most marked in petrolina, scarcely noticeable in vaseline and densoline. There is quite a difference in the freezing point, which may be of marked importance when employed in practice, since the heat of summer has a tendency to melt the salve and make it inconvenient to apply it as a dressing. Densoline fuses at 40° C. Vaseline and cosmoline at about 39° C.; petrolina at 52.22° C; petrolatum at 54.44° C. To determine the freezing point a small portion is put into a test-tube and covered with water; the tube is then put into a water-bath, and heated slowly, when it arrives at the point of melting little bubbles of the oily substance rise to the surface. Impurities are detected by adding sulphuric acid and allowing it to remain in contact for a few hours, and if the vaseline changes color it contains organic substances.

1. Densoline where shaken with sulphuric acid (1.540 specific gravity), at first colors slightly and in the course of two hours takes on a reddish-brown color.

2. Vaseline is quite brown from the beginning, but does not at the end of two hours get any darker than densoline.

3. Petrolatum turns very dark at once, and finally gets almost black.

4. Cosmoline changes at once, and in two hours takes on a deep brown color.

5. Petrolina changes at once, and finally looks of a dirty, reddish-brown color.

The presence of fatty oils, or lard of vegetable or animal origin, are detected by adding five grammes of soda to five grammes of vaseline, and then shaken with 25 grammes of water. The liquid is decanted and treated with dilute sulphuric acid, and if the vaseline specimen was pure, no fatty substances appear, while if a foreign oil is present it will be separated by the sulphuric acid. Neither of the above mentioned preparations showed impurities by this test. The densoline petroleum salve seems to be the most applicable for all general purposes; next comes vaseline.—*Zeitschrift des Allgemein. Apoth. Vereins.*

[NOTE BY TRANSLATOR.—Quite recently the Cheeseborough Manufacturing Company have been placing a preparation called "white vaseline" on the market and while it looks very nice it contains impurities that will undoubtedly prevent it from coming into general use. As an ointment in eye diseases it will not answer since it will not melt as readily as vaseline. It looks granular, and does not possess that smooth oily appearance found in pure vaseline.]

Large Doses of Ipecac in Pneumonia.

Baldassare Testa has made a series of experiments showing why large doses of ipecac should not be employed in pneumonia, a treatment quite prevalent. Either the powder of the root or its alkaloid attributes to this drug antiphlogistic properties, which may appear to be the case by causing anæmia of the lungs. When administering large doses of this drug to animals, the appearance of ischæmia is not always found. T. has often found a congested condition, sometimes even showing ecchymoses, and in the cases where ischæmia is present, a certain blueness precedes the anæmic condition. The above state is not all that we must consider; we must also study the state of the other organs when laboring under a large dose of ipecac.

It is known that large doses of ipecac weaken the heart's action and lessen the arterial tension of the greater circulating system. The autopsy of animals poisoned with this drug showed a congestion of the parenchymatous organs; especially was this marked in the liver, but the peritoneum and mucous membrane of the stomach and intestines also were very much congested. Ipecacuhana causes a dilatation of the vessels, but quite an irregularity in the distribution of the blood supply. In the small circle through the lungs the supply is diminished, while in the large circle it is increased, bringing about two sources of danger: Resorption of the pneumonic exudate may be hindered, which favors caseation and gangrene, and on the other hand causes dyspnœa by bringing too little oxygen in contact with the air cell. Testa therefore comes to the following conclusions concerning the use of large doses of ipecac in pneumonia:

1. Large doses of ipecac do not possess antiphlogistic properties in pneumonia.

2. They may act injuriously during the process of resolution.

3. They may predispose to blood stasis in some of the various organs, especially the liver.

4. They reduce the strength of the system and bring about a predisposition to adynamia.

5. They weaken the heart's action, and cause paralysis of the heart.

6. The emetic action of ipecac, when given in large doses, is seldom absent.

7. The above effect may not be produced by acting on the sympathetic system, but by producing a certain degree of asphyxia.

8. The absence of vomiting is a criterion of an apparent unfavorable tolerance of the drug.

9. Large doses of ipecac in pneumonia are not only useless, but should be condemned as absolutely injurious.—*Deutsche Med. Zeitung.* T.

The Treatment of Ophthalmia Granulosa by Removing the Conjunctiva, found in the Cul-de-sac, by Means of the Knife.

The theses and dissertations on the subject of the treatment of granulations have been numerous, but we must give the reader a short resumé of an article by Vonkchevitch, and at the same time giving the views of Prof. Richet and Galezowski:

1. Until now we have not found a specific for trachoma.

2. Caustics, astringents and antiseptics, so generally employed at present, are not sufficient to cure granulations.

3. Inoculation with specific virus seems to be indicated in certain cases of pannus, but must be very carefully employed.

4. Jequirity has not been studied carefully enough to give it the position in therapeutics which it occupies at present.

5. The last two medicaments seem more applicable for the cure of the complications of trachoma than the trachomatous process itself.

6. Scraping of the lids, practiced by many surgeons, may, by cicatricial contractions, cause deformities of the lids.

7. All oculists agree that the trachomatous process is more marked in the conjunctival cul-de-sac, than anywhere on the conjunctiva, and that the applications of caustics is not very successful to this region. Accordingly the author claims the best way would be to remove this portion of the conjunctiva by means of the knife.

The performance has this advantage, that it is easily carried out; does not cause any deformities of the lids; heals rapidly and perfectly. T.

A New Method of Inhalation.

In the hospital "Amelie les Bains," where quite a large number of soldiers are treated during the winter for a chronic affection of the respiratory organs, Dr. Haro invented an apparatus for the inhalation of medicated substances, where the medicated vapors are mixed with atmospheric air. It is constructed on the principle of the Heronball in connection with the common spirits spray apparatus. The air is forced into a vessel containing the medicament when the air impregnated with the drug escapes from small openings, opposite which the patients sit and inhale the air.

This procedure offers two advantages: first, forcing cold air into the vessel where the stream is generated, cools the escaping steam so the patient can sit before the jet completely enveloped with vapor. Second, this reduction of temperature permits the patient to respire freely and deeply. Until now only iodoform and creasote have been employed in this inhaling apparatus, but it promises fair to be a success.—*Pharm. Centralhalle.* T.

Correspondence.

The Action of Gelsemium.

In the September number of the GAZETTE, page 432, I find an extract from the Brit. Med. Journal, giving the experience of C. H. Watts Parkinson, M. R. C. S., in the use of gelsemium. The expression which more particularly arrested my attention was this: "Gelsemium, in my experience, to be useful, must be pushed until the physiological effects are produced; but I have never before seen or heard of drooped lids being produced from its administration," the same referring to a case in which the Dr. had administered six three-minim doses of gelsemium for the relief of facial neuralgia. In my practice I make use of considerable gelsemium, and even in moderate doses I find drooping of the eyelids not an infrequent result of its use. In giving the drug for the relief of facial neuralgia, in many cases of which it proves a remedy of great value, I find, as does Dr. P., that the physiological effects must be produced in order to relieve the pain.

Bartholow, in his Mat. Med., page 414, in speaking of the physiological effects of gelsemium, says: "In moderate doses, but sufficient to produce decided physiological effects, gelsemium causes a feeling of languor and mental calm, slowing of the action of the heart, drooping of the eyelids, dilatation of the pupil, and some feebleness of muscular movements. In larger doses (not toxic) the effects are as follows: Vertigo, double vision, amblyopia, paralysis of the levator palpebræ, so that the upper eyelid cannot be raised, etc. According to the investigations of this author, which have been fully confirmed by such observers as Ott and Ringer, gelsemium acts in warm-blooded animals as a paralyzer, first of motility, and afterward of sensibility; and in my experience, the impairment of sensibility and relief of pain in the neuralgia of the fifth pair, have been but rarely attained, except as following a paralysis of the motor oculi communis, from which disturbances of vision would, and blepharoptosis must necessarily, come. I have found this condition produced by the administration of small doses given as a cardiac sedative; in one case of an adult lady, even so little as one drop of the fluid extract given every 1½ hours continuously for about 12 hours.

Is it that the weight of Dr. Parkinson's experience in the use of gelsemium differs so greatly from that of other members of the profession, or is my experience an exceptional one? Let others speak.

A. M. HUME, M. D.

OWOSSO, MICH.

I have had considerable experience in the use of gelsemium, and believe it to be a very useful medicine. I have more recently confined myself to the fluid extract, since I have found it more uniform in strength, and, therefore, much more reliable in use; yet I am disposed to recommend that a normal fluid extract of the drug be prepared for the profession, or that it always be prepared from the green plant. At

least, some thoroughly reliable form of its active properties should be within reach of the profession. As Dr. C. H. W. Parkinson has said, "To be useful it must be pushed until the physiological effects are produced;" hence one of the great annoyances of prescribing it when of an uncertain strength; if too weak, we gain nothing, and if too strong, we frighten the patient by untoward symptoms. I believe it to very useful in many conditions, such as neuralgia, in urinary, and in the various uterine and ovarian reflexes, and yet I have often omitted to prescribe it in cases for which it seemed to be appropriate, because of the uncertainty of the strength of the preparation, which should be put up by the apothecary.

I have often used the following with very satisfactory results in irritability of the bladder. I obtained the idea from Dr. Hill, of Augusta, Me..

℞ Potas. carbonatis, ʒ i.
Potas. bromidi, ʒ iss.
Ext. gelsemium fl., ʒ iss.
Aquæ dest., ʒ ij.

M. Sig.: One teaspoonful three times a day.

Besides the want of uniformity in the strength of the preparations likely to be used in filling prescriptions, there is one drawback for which I think there is yet no certain safeguard, viz.: unusual susceptibility to its action by certain individuals. I have thought that in this respect we were liable to more vexation than with almost any other agent—the least amount unpleasantly affecting some persons, while a much larger than the ordinary dose is necessary to produce the desired effects on others. However, extensive observation on this point may lead us to know beforehand what persons will require such minimum doses, and what others must have the maximum, or even more, from the start. If this could be done, and a thoroughly reliable drug of uniform strength could be furnished the profession, I apprehend few remedies could be made more serviceable. Perhaps some of your readers have surmounted these obstacles already.

E. Chenery, M. D.

Boston, Mass.

Menthol, Cascara Sagrada, Euphorbia Pilulifera.

Having had some considerable experience in the use of quite a number of the drugs introduced to the notice of the profession within late years, I take the liberty of reporting the results noted after the employment of those above mentioned. I have been particularly pleased with the effects of menthol as a local application. My method of applying it is in the form of a paint, composed of, menthol, five drachms; spirits of camphor, one ounce; and alcohol, one ounce. This is to be applied with a camel's hair pencil. In all painful affections over the immediate seat of which it is possible to apply this lotion, it will be found to materially mitigate the suffering. I have applied it with success in erysipelas, and have found it beneficial, both in circumscribing the eruption and in allaying the pain and itching of the disease. I think it also materially lessens the duration of the affection, and as it is a disinfectant, it may properly be regarded as useful in preventing the contagion of the disease. Care must be taken that it does not come in contact with the eyes or with abraded surfaces. As an application over the seat of neuralgia, menthol, in the formula which I advise, has been so successful as an anodyne as to make me quite enthusiastic in its praise. I have also found it useful as an application to the abdomen for the relief of colicky pains.

It scarcely requires any recommendation of mine, to bring cascara sagrada to the notice of the profession. If ever a remedy has been tested under most trying circumstances, that remedy is cascara sagrada. The history of its early trials is familiar to every reading physician in this country. I desire merely to state the fact that I have seldom or never been disappointed in my use of it. My favorite combination is equal parts of cascara sagrada, berberis aquifolium and glycerine, of which I give a teaspoonful every three or four hours.

I think we have in euphorbia pilulifera, a drug which is destined to occupy the most prominent position in our list of remedies for asthma. Singularly enough, it has never as yet failed in my hands. I would not have it inferred from this that it is an infallible remedy, but that it is entitled to a trial in this obstinate affection. Combined with quebracho, its efficacy is enhanced when there is a complication of emphysema of the lung.

I could report numerous cases in support of the above allegations, but owing to the limits of your space, will let the bare statement of results suffice.

H. Hosford St. John, B. A., M. D.
Medical Officer of Health.

Mauti City, Utah.

Iodine in Malarial Fever.

In the June number of the Gazette, Dr. Cree cites a case of intermittent fever treated with iodine with perfect success, and asks for the views of others upon the above subject.

In the American Journal of the Medical Sciences, for July, 1883, will be found an interesting article, by Drs. Atkinson and Wood, upon iodine in malarial fever, with analysis of seventy-six cases.

The deductions drawn are as follows:

1. In intermittent fevers it has some feeble influence in controlling the paroxysms.

2. It takes from three to eight days to exercise this influence.

3. In *cures effected* there is great danger of a relapse; certainly as great as with Peruvian bark.

4. It is certain to add to any existing diarrhœa or nausea, and is liable to cause each, if they do not already exist.

5. In *remittents*, its effect, if any, is seen in a slow and gradual reduction of temperature, and this reduction is liable to sudden interruptions.

6. In *both forms* of malarial fever it is infinitely inferior to either cinchonidia or quinine; certainly, as regards immediate control of the fever, and, as far as we are able to judge, as regards relapses also.

7. From an economic point of view, the slowness and uncertainty of its action make its use in *hospital* practice fully as expensive as Peruvian bark.

8. There seems to be some ground to believe that it can cause albuminuria.

9. In the large majority of cases of ordinary

acute malarial poisoning, it has no influence whatever.

My experience has been considerable with this agent, and confirms the deductions of the paper above quoted in all my cases of malarial fever, that is, its acute form. I think improvement followed its use in a few chronic cases.

F. C. SHELDON, M. D.

PASADENA, Cal.

Substitute for Chlorodyne—Formula for Gastro-Enteritis.

On account of several objections to the use of chlorodyne, I have, after a great deal of experimentation, adopted the following formula as a substitute for that compound:

℞ Morph. mur., gr. ss.
Chloral hyd.
Chloroform, āā ʒ ss.
Tinct. cannab. ind.
Tinct. capsici.
Acid hydrocyan dil., aa m. xx.
Spir. menth. pip., m x.
Syr. sassafras co. ad., ʒ j.

Dose: ʒ j.

The following formula I have sometimes used to fulfill the two fold indication of relieving nausea and restraining the bowels in the acute stages of gastro-enteritis:

℞ Bismuth ammon. cit., ʒ ss.
Acid carbolic. gtt. ij.
Liq. atropiæ, gtt. ij.
Tr. menthæ, gtt. viij.
Tr. opii deodorat. gtt. x.
Syr. acaciæ, ʒ ij.

M. Sig.—A teaspoonful every two or three hours.

When the evacuations are frequent, small, slimy or bloody, in other words, dysenteric, I find occasional use of a castor oil mixture of very great advantage, thus:

℞ Ol. ricini, ʒ i.
Tr. opii deodorat. gtt. vi.
Syr. acaciæ, ʒ i.
Tr. menthæ, gtt. ij.

Mix. Sig.—Dose: A teaspoonful every two hours till the stools assume a healthier character, after which bismuth and pepsine powders may be resumed, with or without the comp. chalk and opium, as the condition of the bowels may indicate.

J. E. TH. MÜLLER, M. D.

CROSS PLAINS, Wis.

Urinary Incontinence in Childhood.

Will the readers of the THERAPEUTIC GAZETTE favor me, through the columns of this journal, with the results of their experience in the treatment of this, sometimes, most obstinate complaint? I have now under treatment a little boy about nine years of age who "wets the bed" nearly every night. Is apparently in perfect health otherwise. He is strong and vigorous, not troubled with the frequent desire to urinate in daytime. I am unable to find any urinary calculi, excessive acidity, worms or evidences of masturbation.

I began treating this case June 28, 1884, with tincture of belladonna, in five-drop doses, night and morning. Receiving no benefit from this, on August 19th, I gave the following:

℞ Tinct. belladonna, ʒ i.
Fl. ext. rhus. aromatica, ʒ iv.
Syr. simp. qs. ad. ʒ iv.

M. Sig.: One teaspoonful after meals and at bed time. Producing too much dilatation of the pupil with this, on September 3d I ordered:

℞ Fl. ext. rhus. aromat.
Syr. simp., āā ʒ ii.

M.

Sig. One teaspoonful after meals and at bed time which he has been taking continuously ever since. Thus far I can see no improvement. Should be very thankful for any suggestions from those whose experience has been more satisfactory than mine has in the present case.

A. G. BRUCE, M. D.

ALBION, MICH.

[Has Dr. Bruce tried the effect of cauterizing a small portion of the mucous membrane of the urethra? This may be done by inserting a piece of lunar caustic to the extent of half an inch from the meatus, and allowing it to remain from fifteen to thirty seconds. ED. GAZETTE.]

Sarco-Peptones.

I took charge of Mrs. W.'s case April 8, 1884, and learned the following history: Her age was about thirty-four; twice married; one child during first husband's life; four since second marriage; youngest child some two years old.

In December, 1883, her menstruation was attended with unusual distress, and from that time till I took charge of the case the flow had not ceased, that she was aware of, for an hour. Appetite gone, strength gone, desire to live gone, hope of recovery gone. Placed her upon appropriate treatment, and recommended maltine, beef peptonoids, everything that was at hand in the way of nutrition, but all seemed to act as a revulsive, as soon as an effort to use it was made, until I received a sample of sarco-peptones. I took this to a neighbor of hers who was noted as a first-class cook, and directed her to prepare it and take it to Mrs. W——, in her own name, not letting her know I had furnished them. This she ate with a relish, and said if such "soup" as that was furnished she could eat every day. I accordingly requested the lady to continue taking it in the form of soup or on toast, in fact, any way she thought of, and actually by the time the first box was used apppetite was good, and before the second box was taken the patient was up and going to the table regularly, and early in this month was able to start on a trip riding in an ambulance twelve to fifteen miles a day. She has written me since I came here, that she feels fully recovered, and, having learned the joke about the soup says she believes the soup did her as much good as my medicine, and was certainly more agreeable to take.

F. B. OWENS, M. D.

MILLBURN, TEXAS.

Plants of the Indian Territory.

I have just returned from a scientific trip to the Creek Nation, in the Indian Territory, south-west of here. The plants growing in the Indian country near us are similar to our own in Kansas.

On the Arkansas river the lake or Champlain formation is suited to and produces some strange plants, and is a noted malarial region.

The Creek Indians use the root of the Tephrosia spicata to stupify and capture fish.

I was shown the root of a plant used by them for snake bites. It is, seemingly, an umbel. I was assured by intelligent authority of its value. The Prunus chicasa, and Euphorbia marginata are indigenous in the nation.

The india rubber tree, or Bumelia lannginosa is used by the Creeks as a tonic and antiperiodic. I discovered its medicinal property here years ago and so wrote the GAZETTE. The amont of bark taken from the trees is indicative of its great value, and I would be glad to see an extract made from it so it can come into general use.

A Creek died last year .115 years old, but mixed races are short lived and puny.

The screw fly or Lucella macillaria is the terror of stock men. It is said to not attack the human body unless it sees blood. It is destroyed by calomel or carbolic acid.

W. S. NEWLON, M. D.

OSWEGO, KANSAS.

California Laurel.

My success in the use of the California laurel in muscular cramps has been admirable. The details of a case will illustrate its value:

A patient under my care has been for years subject to cramps in his lower limbs after standing all day. He has used many things, he says, but never anything that would relieve him as readily as the laurel does. He keeps a bottle of it always at hand, so as to be able to get it in the dark, when he has an attack at night. He makes one application, and will not, perhaps for weeks, have another attack. He thinks he never would have an attack unless he got his feet damp.

In many other affections I have used it with equally good success. In bowel complaint I have used it more externally over the bowels, than internally, and it often relieves the cramps readily. I have seldom given it internally, but when I did I could not judge whether it was the remedies I had given before or the laurel that relieved. I generally give the old-time remedies first, and try the new ones when I am baffled with a case that will not yield to the older ones. I really think the California laurel has a future in our materia medica that we little think of. It certainly merits the attention necessary to its development.

S. C. HALL, M. D.

FORT SCOTT, KANSAS.

The Alcohol Question.

The recent introduction of the alcohol question into the common school curriculum, in this state, has elicited a number of elementary works on physiology which seem to me to cater to popular sentiment and to ignore the latest and best results of scientific experimentations. I have examined several of these and find the view invariably maintained that alcohol is *not* a food.

I am aware that some eminent authorities—notably Dr. W. B. Carpenter—entertain the same view.

There seems to be a wide difference of opinion both as to the dietic value and physiological effect of the drug upon the human organism.

The interest in this question is greatly enhanced by the temperance agitation that is being evoked by the political campaign.

You will confer a great favor upon many, I believe, if you will answer through the GAZETTE the following questions:

1. Is alcohol a food?
2. Does it aid in the construction of any of the tissues of the body?
3. If it is a food, what is its relative value as compared with fats?

W. FLAGLER, M. D.

ARMADA, MICH.

Sarco-Peptones.

In a singularly distressing case, which has been under my observation, I have observed remarkable results from the use of the sarco-peptones. The case was one of neuralgic dyspepsia. The patient was unable to assume the recumbent position, and was troubled with constant eructations of gas. He was literally starving to death, through inability to retain anything on his stomach for longer than from one to three minutes. He had tried the various foods and peptonized preparations of beef on the market, without avail. After putting him on the sarco-peptones he rejected a portion of the first three or four doses administered. But after this his stomach became quiet and he retained the preparation without difficulty. Although he has now been taking sarco-peptones continuously for a considerable length of time, they have not become distasteful, as is too apt to be the case in most of the other forms of peptonized beef. The case is a chronic one, its duration extending back ten or twelve years, which fact makes the success of the sarco-peptones all the more remarkable.

JOSEPH A. TREAT, M. D.

STUART, IA.

Ergot Spray in Hæmoptysis.

I was attending a case of pulmonary hæmorrhage in which the flow of blood became alarming, notwithstanding the usual treatment. Suffocation seemed imminent, when it occurred to me that the vapor of ergot would probably give relief. Having an atomizer at hand, I immediately caused the patient to inhale from it a drachm of the fluid extract of ergot, She began to experience relief in a few moments, and the hæmorrhage was arrested for some time. On its recurrence the repetition of the spray again controlled it. It was not necessary to use it any more.

G. G. EVERITT, M. D.

NEWTON, MISS.

The Question of Substitution.

I wrote a prescription for C. C. P., U. S. P. (Ellsworth's ℞), and the druggist filled it with ordinary compound cathartic pills of the U. S. P. Did the druggist put up what was ordered or did he substitute? I maintain that he did not put up what I ordered.

R. G. F.

[For answer see editorial columns.]

The Therapeutic Gazette

WILLIAM BRODIE, M. D., Editor.

ASSOCIATE EDITORS:

J. J. MULHERON, M. D. and A. B. LYONS, M. D.

DETROIT, MICH., Nov. 15, 1884.

GEO. S. DAVIS, Medical Publisher, Box 470.

SUBSCRIPTION RATES FOR 1885.

(Journal increased to 72 pages.)

THERAPEUTIC GAZETTE (postage included).....$2.00
THERAPEUTIC GAZETTE with MEDICAL AGE.... 2.50
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Price to Foreign Subscribers direct (postage included) $2.50 (10 shillings.) English postage stamps received on remittances.

EDITORIAL MANAGEMENT FOR 1885:

HORATIO C. WOOD, M. D.,

AND

ROBERT MEADE SMITH, M. D.,

PHILADELPHIA.

Through an inadvertence a number of copies of the last issue of the GAZETTE were mailed without the subscription blank which it was said would be found enclosed. In order to correct the oversight, the whole of the present issue will be found to contain the blanks. Parties who have already remitted will, therefore, please pay no attention to this second enclosure.

Cocaine Muriate as a Local Anæsthetic.

A DISCOVERY is just announced which promises to revolutionize the practice of ocular surgery. It has been known for some years that a two-per-cent. solution of cocaine muriate, applied to the mucous membrane of the pharynx and vocal cords, diminishes in a remarkable manner, the sensitiveness of the parts, and laryngologists have been in the habit of employing such a solution to facilitate their examinations.

Taking the hint from this practice, Dr. Koller, a young physician in Vienna, tested the effect of a solution of cocaine upon the eye. His expectations were more than realized. The solution produced complete anæsthesia of the cornea and conjunctival mucous membrane. Dr. Koller communicated his discovery to Dr. Brettauer, of Trieste who demonstrated the effects of the new anæsthetic before the Ophthalmological Congress, which recently met in Heidelberg.

A two-per-cent. solution of the muriate of cocaine was employed in these experiments. Two drops of the solution were placed in the patient's eye. At the end of ten minutes it was found that the sensitiveness of the superficial structures of the eye was considerably diminished. Two drops more of the solution were introduced into the eye, and after an interval of ten minutes the condition of the eye was once more examined, when it was found that the cornea and conjunctival mucous membrane could be freely handled without the least feeling of pain. Probes were passed over the surface of the cornea, conjunctiva bulbi, and conjunctiva palpebrarum, the eyeball was seized with fixation forceps and rotated by them, and a spring speculum was introduced into the eye, distending to the utmost the lids, and the patient declared that he felt nothing like pain from any of these experiments. Previous to the instillation of the cocaine solution, the eye was shown to have the normal degree of sensitiveness, and only the eye into which this solution had been dropped was affected. The solution caused no irritation of any kind, and the observers reported that the pupil remained unaffected. The anæsthetic influence lasted about fifteen minutes, after which the eye resumed its normal condition.

Dr. H D. Noyes, of New York, witnessed these remarkable demonstrations, and gave an account of them in a letter published in the Medical Record of Oct. 11. The oculists of New York, recognizing at once the importance of such a discovery, began immediately to experiment for themselves, and one week after the publication of Dr. Noyes' letter, reports of clinical observations by three different oculists appeared in the Medical Record, not only confirming the accounts of the Heidelberg observers, but showing that the importance of the discovery had not been overestimated.

Dr. Agnew says: "We have to-day (Oct. 14, 1884) used the agent in our clinic at the College of Physicians and Surgeons with most astonishing and satisfactory results. If its further use should prove to be equally satisfactory, we will be in possession of an agent for the prevention of suffering in ophthalmic operations, of inestimable value. It is difficult to avoid expressions of extreme enthusiasm in view of what we have to-day seen, and in view of what we may rationally expect from the further applications of the agent." The doctor then reports five cases in which he operated on the eye, employing a solution of cocaine muriate to produce anæsthesia. These cases, together with others equally remarkable by Dr. Wm. O. Moore and Dr. Jas. L. Minor, we give elsewhere in our columns, in extenso; the facts are stranger than any invention of fable or tale of ancient magic. Henceforth, minor operations will be performed on the eye without the use of a general anæsthetic, and yet will be perfectly painless, and the surgeon will have the added advantage of securing the intelligent cöoperation of his patient. The hyperæsthesia which has heretofore so often rendered it almost impossible to make any satisfactory examination of an inflamed eye, will no longer baffle the surgeon, and operations, for patients themselves, will be robbed of half their terrors.

The operations in which cocaine was employed included four for strabismus, two for cataract, one for removal of pterygium, and one iridectomy. In every one the operation was practically painless. Even where excessive irritability and hyper-sensitiveness of the eye existed, the application of the cocaine solution had its usual magical effect.

Dr. Moore says: "Should cocaine in the hands of others meet with the same success that I have attained, it will mark an era in ophthalmic surgery,"

and in view of the facts, his language cannot be regarded as extravagant.

It remained, however, for a Detroit oculist to point out one of the most important uses of the cocaine solution in its application to the treatment of eye affections. Dr. Connor (Oct. 18) employed the solution in removing a pterygium, and later, in dislodging from the cornea a fragment of steel, and in some other minor operations, finding, as other observers had done, that it produced complete anæsthesia in the superficial structures of the eye. He noticed, however, that in every instance where he applied the solution the pupil dilated, so that ophthalmoscopic examinations could readily be made. He found that there was no concomitant paralysis of the accommodation, as when atropine is employed, and further, that the effect of the cocaine was only transient, passing off wholly within a few hours. The fact that cocaine is not a very noxious agent, and that its effects pass off within a few hours, gives it a great advantage over any of the mydriatics at present employed, when we desire to dilate the pupil merely for the sake of an ophthalmoscopic examination. The Heidelberg observers distinctly stated that the pupil was not dilated in their experiments. It is difficult to reconcile this statement with the observations of Dr. Connor, and it seems strange, also, that the New York oculists should have overlooked the effect of the agent on the pupil. Possibly there may have been a difference in the cocaine itself.

Finally, we invite attention to the possibility of other equally important applications of cocaine as a local anæsthetic. If it will diminish pain and remove irritability in the eye and in the larynx, may it not prove of equal value in the treatment of diseased mucous membranes elsewhere? Possibly, indeed, the range of its useful application is not confined to mucous membranes. We shall expect to hear, soon, reports from surgeons and from physicians who may have opportunity to experiment in these directions. Cocaine, and the galenical preparations of coca as well, have yet to be assigned their true place as therapeutic agents, and we shall be greatly disappointed if they do not shortly take rank with morphine and quinine, as among the indispensable agents of the materia medica.

The Alcohol Question.

THE triad of questions submitted to us by our correspondent, Dr. Flagler, is sufficient to open up a subject of such immense magnitude and having so many bearings, that we find on a survey of it that it will be impracticable for us, in view of the functions of the GAZETTE, to give it more than the most superficial cosideration. Our answers to the several questions submitted must necessarily be very categorical, for while our opinions are the outcome of a by no means superficial consideration of the subject, the limits of our space and the fact that the subject does not properly come within the sphere of this journal, make it impossible for us to adduce the data on which these opinions are based.

It is unfortunate that the antagonism which exists between the advocates of total abstinence and those who can discover in alcohol properties which make it valuable in health as well as in disease, should generate an indisposition on the part of the antagonists to see the best points in the arguments of their opponents. This question was brought particularly prominently before the people of Great Britain by the recent Health Exhibition there, and the Lancet takes occasion to refer to the incapacity of the belligerents to accord it a judicial treatment. A writer in the Times was particularly bitter in his denunciation of the total abstinence party. He maintained that the dominant nations have all used alcohol in some form or other; that those who wear the badge of abstinence are obviously persons of inferior physical development, and, so far as they can be judged by facial expression, not remarkable for intellectual power; that the best work of the world is done by moderate drinkers, and that the work of total abstainers is of a very common-place kind; that barring cases of manifest disease, drunkards now are either professional criminals, who had better be drunk than sober, or persons of slender self-control who are ready at any time to lapse into criminality, that such persons drink on account of the morbid state of the nervous system, inherited or acquired, and when reclaimed by teetotalism, they are striking examples of its power, but the ordinary experience is that after many relapses they ultimately die, directly or indirectly, from the effects of drink.

It is very natural that such a summary of the alcohol question as above, should call from the tectotal section of the community very indignant protest, and their replies have been characterized by an intemperance of language sadly out of keeping with the dignity of the cause which they champion. The denunciations of the teetotalers have, without doubt, alienated influential classes among moderate drinkers, whose assistance might have been secured in the furtherance of the cause of true temperance. Their dogmatism about what constitutes food and what poison, and about the injurious effects of every drop of alcohol, has excited ridicule and laughter rather than intelligent interest. This dogmatism has prevented the medical profession from contributing its assistance as largely as it might towards the eradication of the abuse of alcohol. The Lancet also maintains that a large section of ministers of religion have been obliged to stand aloof from those who, against scripture, common sense, and the examples of the good in all ages, have refused to recognize in wine and its congeners, things capable of use as well as of abuse, and things to be reasoned about calmly in the light of experience and science.

Is alcohol a food? To answer this question intelligently, we must first understand what is meant by the term food. The usual meaning of the word makes it a something, which, taken into the system, is digested and appropriated to the repair of waste and the building up of new tissues. With this conception of the word in mind, alcohol is not a food. A broader, and more proper, meaning makes the word to cover everything which, being consumed in the system, generates the force necessary to the carrying on of the vital processes. Under this definition alcohol is certainly a food, and a very important food. It is rich in carbon, and the union of this element with oxygen, whether in the body or out of it, generates heat. That alcohol is consumed in the system is no longer doubted, and one-and a-half ounces of the pure spirit may, under the ordinary conditions of exercise and respiratory activity, be daily burnt off in the economy. Under conditions of increased exercise and respiratory activity, an amount

in excesss of this quantity may be consumed. It has been estimated that an ounce of good whiskey possesses force-producing properties equal to five ounces of lean beef. To secure the full benefits of alcohol as a respiratory food, it must not be given in excess of the capacity of the system to dispose of it. In such excess it dilates the superficial capillaries, and thus, by exposing an increased volume of blood to evaporation, lowers bodily temperature.

Does alcohol aid in the construction of any of the tissues of the body? No. But while it does not assist in building up tissue, it retards tissue waste, thus, under its proper use, making a smaller amount of food necessary to the conservation of the integrity of tissue.

If alcohol is a food, what is its relative value as compared with fats? The answer to this question must be inferred from those above given. In physiological quantities alcohol plays much the same part as a food as do the fats, the advantage being in favor of the latter from the fact that their use in excess of the capacity of the system to consume them is not apt to be followed by the disastrous results which attend the excessive use of the former.

The Question of Substitution.

A NICER question in casuistry than that of our correspondent, "R. G. F.," it would be difficult to put. It must be admitted in the outset that the druggist did not put up what was prescribed, and as a corollary it follows that he was guilty of the heinous offense of "substitution." Yet without a full knowledge of all the circumstances, we should not be willing to pronounce him in the wrong.

The druggist devotes years—sometimes—to study, to qualify himself to carry out such instructions as the physician may have occasion to give regarding the treatment of his patients. He has no right to transcend in any instance such instructions, or to assume that the physician has written one thing where he intended another. In case he finds anything in the physician's prescription that is ambiguous, he must, if possible, appeal to the physician himself for an explanation. He is not justified in assuming any responsibility whatever, where the meaning of the physician is in doubt. But, on the other hand, the druggist has a duty to the patient which, in some cases, renders it imperative that he act, and that promptly, on the best decision that he can make of a question of this character. Every dispensing pharmacist of large experience can recall instances in which any waste of time in quibbling over the written words of the prescription would frustrate wholly the physician's intent. In a country village a prescription is presented late at night, the patient waiting anxiously for the medicine. The prescription commands the druggist to furnish for the patient certain remedies, which, in the physician's judgment, are necessary. The druggist happens to know that the doctor has a call to attend several miles out in the country, and will not be back before morning. The druggist's duty is to carry out the physician's instructions as given him in the prescription. If those instructions are wholly unintelligible, of course he can do nothing. If, however, they are tolerably clear, and demand immediate action, his obligation, both to physician and patient, requires him to exercise his best judgment in carrying out their commands.

To recur to the case in hand. The prescription, in the first instance, calls for a preparation of the U. S. Pharmacopœia, which can, therefore, admit of no ambiguity. Immediately below, however, the physician contradicts himself, adding "Ellsworth's ℞."

Clearly, under ordinary circumstances, the druggist should communicate with the physician, and ascertain the meaning of his contradictory prescription. Yet, if the circumstances were such as to compel him to use his best judgment in the case, and if he had never heard of Ellsworth's formula, as would seem probable, we cannot censure him severely, if at all, for dispensing an article which actually was prescribed.

The object of a pharmacopœia is to enable physicians to make their exact meaning in prescribing clear. If the physician go beyond the pharmacopœia in writing his prescription, unless he is in collusion with a certain druggist, he will take pains, first, to prescribe only such articles as are tolerably well known in his own locality; and, second, he will designate the article wanted so distinctly that it cannot be mistaken for anything else.

The circumstance that Ellsworth's pills are sent out as U. S. P. should not mislead the physician into prescribing them under that name, but having written the "U. S. P.," he ought not to regard it altogether an accident if his patient received U. S. P. pills.

Poisoning by Cannabis Indica.

A NUMBER of cases recently reported in the medical journals, illustrate very forcibly the inconvenience and danger from the differences in the strength of the various preparation of alkaloidal drugs as they are found in the market. This difference is almost, if not quite, inevitable under the existing looseness of the rules, or rather, indeed, absence of all rules whereby a uniformity of strength in such preparations as manufactured by different houses, might be secured. While the instructions governing these preparations are sufficiently explicit, no account is taken of the fact that an exceeding diversity may exist in the strength of the crude drug as it is employed by the various manufacturers. The only reliable method whereby uniformity of strength may be secured, is that which governs the manufacture of the normal liquids, the administration of which gave rise to the experience of Dr. Beane, of Buffalo, as reported in the June number of the GAZETTE. Presuming on the weakness of a sample of normal liquid cannabis indica, a presumption which was warranted by his experience with the various other preparations of the drug in the market, he took a considerably larger dose of the normal liquid than was stated on the label. Our readers may recall the graphic account of the symptoms which he experienced. In the July number of the American Practitioner, Dr. A. B. Cook reports a case in which an overdose of a preparation of cannabis indica was taken with suicidal intent. The report is particularly interesting because of its detailed statement of the symptoms which the drug aroused. They became so alarming as to cause the doctor to resort to the battery, which

was found necessary to stimulate respiratory movement. The effect of the drug was apparently to paralyze the respiratory muscles of the thorax, thus making respiration entirely abdominal. One pole of the battery was applied to the spine, moving it from the base of the cranium to the lumbar spine, while the other was applied alternately to the pectoral muscles over the region of the heart, around the margins of the ribs and the cartilages of the ribs and sternum, and over the cervical portion of the phrenic nerves, to stimulate all the respiratory muscles. The benefits of this procedure were prompt and Dr. Cook is inclined from his experience to place more confidence in the battery in such cases than in any other known remedy.

The lesson to be derived from these cases is that when prescribing the normal liquids the size of the dose as stated on their labels must not be exceeded, and in the case of poisoning by cannabis indica that the battery should be resorted to.

A New Method of Treating Uterine Hemorrhage.

At the recent meeting of the British Medical Association a paper was read by Richard Richardson, before the section of obstetric medicine, in which he claimed very singular advantages from the application of iron alum in cases of uterine hæmorrhage. He, moreover, attached considerable importance to the method in which he applied the styptic. He applied it in the form of the crystal of about the size of a hazel nut, or slightly larger, in severe cases. This crystal is to be introduced with the finger up to the os uteri, and not into it, and there allowed to remain. Under its influence the uterus is said to at once contract, a firm coagulum to form, and the hæmorrhage at once to cease. The iron alum is also antiseptic, and Dr. Richardson claims to have removed clots, on the fourth and fifth day after its application, which were quite free from any disagreeable odor. In a case of very severe hæmorrhage he injects, two or three days after the application of the alum, a little warm water to remove the clots. This method of treatment has none of the dangers attached to it which are inevitable from the injection of liquid preparations into the cavity of the uterus, and Dr. Richardson declares that he has never known it to fail either in accidental, unavoidable, post partum or secondary hemorrhage. He reports in detail six cases, from a record of eighty-two cases, of uterine hemorrhage, in which the remedy was applied without a single failure.

If subsequent experience should corroborate Dr. Richardson's claim, his discovery will be entitled to rank among the more important of recent years. Lest, however, the profession might receive Dr. Richardson's rose-colored statements with too much faith, it may be well to state that in the discussion which followed the reading of the paper, considerable doubt was expressed as to the universal applicability of this simple means of allaying uterine hæmorrhage, the causes and sources of which are too various to be amenable to any single line of treatment. It may be well, however, in spite of this caution for our readers to charge their minds with Dr. Richardson's claims, against the emergencies which are apt to present in the ordinary rounds of practice.

Dr. Payne's Article on Cerebro-Spinal Meningitis.

We are in receipt of a communication from Dr. C. M. Skinner, of Minneapolis, Minn., which animadverts somewhat severely on the article on Cerebro-Spinal Meningitis, by Dr. Alban S. Payne, in our last issue, and reflecting on us for admitting to our columns an article of such length. In so far as Dr. Skinner's criticism has reference to the consumption of space which we permitted, we acknowledge its justice. The article was admitted in violation of our rule governing the allotment of space to contributors, for we were desirous of giving Dr. Payne the fullest possible opportunity to ventilate his peculiar ideas. He is a gentleman of age and experience, and has held positions of honor and trust in the profession. It is by no means necessary that an editor should be able to fully endorse the views of a contributor presenting such qualifications, before giving them a place in his journal. The editorial function does not, by very common consent, extend thus far ; if it did there might be danger of excluding much possessing inherent worth. It must, of course, always devolve on the editor to keep his columns clear of "bosh," and we do not class Dr. Payne's article as such, Dr. Skinner's opinion of it to the contrary notwithstanding. The cases reported, the number of which is the cause of the undue length of the article, are sufficient to secure for his views at least a respectful consideration.

Palatability in Prescriptions.

It is scarcely necessary, at this late day, to adduce arguments to convince the profession of the advantages which attach to the disguising of the objectionable taste of medicines in prescriptions. Such physicians as have been slow to concede these advantages have had abundant reason, in the complaints of their patients, and in a diminished patronage, to regret their tardiness in catering to the fastidiousness of the modern palate. In the vast majority of cases, however, physicians have had no especial instructions in the art of palatably prescribing, the medical schools from which they graduated not having embraced such instruction in their curricula. Some such work, therefore, as shall furnish the directions heretofore wanting, has been in demand. We are able to announce that a book having this object in view will shortly be given from the press of the publishing house of Mr. George S. Davis, of Detroit. Its title will be "A Practical Treatise of Palatable Prescribing, Containing the Favorite Formulary of the Most Eminent English, French and American Medical and Surgical Authorities of the Age." Its author is B. W. Palmer, A.M., M. D., who has previously compiled a book of a similar nature, which has met with a very extensive sale. The volume will be an 8vo. of about 150 pages, bound in flexible cloth. Price $1.00.

Nitro-Glycerine in Epileptiform Tic Douleureux.

Dr. James P. Bramwell, of the Perth infirmary, reports in the British Medical Journal, of Sept. 27th, a striking case of the curative effects of nitro-glycerine in tic douleureux. Nine months previously

to the date of the administration of the drug, the patient, who was eighty years of age, was seized with a pain in the back of the head, which moved round by the joint of the jaw bone on the right side and spread over the face, chiefly the right cheek and temple. Violent paroxysms of pain, lasting five or six minutes, would occur as often as twelve times in twenty-four hours. Washing of the face with cold water, a puff of cold air, or even a mental emotion, was sufficient to excite a paroxysm. Bromide of potassium and croton chloral hydrate were administered with but partial relief. The patient was then kept upon drop doses, three times a day, or nitroglycerine solution, one to one hundred. The effect of this was almost immediate, and in four days the morbid symptoms had all departed, and at the date of the report four months had been passed in perfect health and without a single return of the tic.

Wit, Humor, and Curiosity in Medicine.

DR. JULIUS WISE, of 806 Olive street, St. Louis, Mo., has undertaken the task of compiling a volume which is to contain the witticisms, humorous anecdotes, and curiosities of medicine of this country. He respectfully solicits the co-operation of the profession in his undertaking, and requests contributions of such material of the nature indicated as may be familiar to any physician who reads this notice. Inasmuch as "a little nonsense now and then is relished by the best of men," we trust our readers will cordially assist Dr. Wise in his laudable undertaking.

Book Reviews and Notices.

A Text-Book of Practical Medicine. Designed for the use of Students and Practitioners of Medicine. By Alfred L. Loomis, M. D., LL. D.; Professor of Pathology and Practical Medicine in the Medical Department of the University of the City of New York; Visiting Physician to Bellevue Hospital, etc. With two hundred and eleven illustrations.

New York: Wm. Wood & Co., 1884.
Detroit: J. MacFarlane.

The preface to this work is brief. In it the author informs his readers that his experience as a medical teacher for the past eighteen years has led him to employ quite extensively plates illustrating the morbid changes and objective symptoms of disease. That in its preparation he has avoided, as far as possible, the discussion of unsettled questions, referring to them briefly in foot notes. That his classification of diseases is based upon the present knowledge of the etiology of disease. That many diseases present very different types in different countries; he has selected those types commonly observed by the American physician. That he has considered those diseases which come strictly within the province of practical medicine. And has endeavored to indicate the treatment usually followed in this country.

The illustrations, with but few exceptions, have been prepared under his own personal observation, and in his opinion represent actual morbid processes and conditions.

Our readers will pardon us if we are more than eulogistic over this work of Dr. Loomis. We were students together in the College of Physicians and Surgeons, of New York, and although he was our junior he was educated by nearly the same men that we were. They will not be surprised that we endorse so fully the ideas of the author. From a close examination of his work on Practice we agree fully in his delineation of disease, while we cannot always confirm him in his treatment and causation. To illustrate, he says, page 672, that diphtheria is a miasmatic, contagious disease, often prevailing epidemically, many of its etiological conditions are identical with typhoid fever, etc.

Now we have practiced in a miasmatic country for over thirty-four years, and it was not until the year 1861 that diphtheria was known, and then it was in conjunction with a severe form of scarlet fever. We have never known diphtheria to exist without at the same time scarlet fever, and so impressed are we with this fact, that we believe the scarlet fever diagnosis of our seniors is identical with the diphtheria of the moderns.

Typho-malarial fever, an unfortunate name, given to a form of fever common in this western portion of the United States, by the late Dr. Woodward Surgeon U. S. A., and by some called the Chickahominy fever, has a tendency to lead the modern student astray. Dr. Loomis says, page 826. "It partakes in its etiological capacity more of typhus than of typhoid in its character." In this western country it is a remittent fever, continuous in character, and requires to be treated as such. The septic element cannot be seen, and hence the name typho-malarial, which was discarded by Dr. Woodworth before his death, is a misnomer, and has a tendency to mislead in treatment. With these exceptions we fully accord with the author in other parts of the work. We wish we could in these. Herein lies the difficulty under which an eastern writer labors in writing a book on general practice. In order to teach knowingly he should be a local observer of which he writes, and our personal knowledge informs us that eastern writers are not sufficiently familiar with the characteristics of the diseases of the west.

Taking diseases on the whole, our author has done them justice, and is a judicious adviser. As a student and close observer of diseases in the section of country where he resides, he cannot well be excelled, and with the exceptions noted, his work on practice of medicine cannot well be equalled.

It is an elaborate work of 1102 pages, with a full index, and is issued in the publisher's best style. It must be rated as one of the standard works on the theory and practice of medicine in this country, and should have a preference over those emanating from Europe, even if re-edited in this country.

Diseases of the Heart and Thoracic Aorta. By Byron Bramwell, M. D., F.R.C.P. E., Lecturer on the Principles and Practice of Medicine, and Medical Diagnosis in the Extra-Academical School of Medicine, Edinburgh; Pathologist to the Edinburgh Royal Infirmary; Additional Examiner in the University of Edinburgh; Late Physician and Pathologist to the Newcastle-on-Tyne Infirmary; formerly Medical Officer to the Tynemouth Union Workhouse Hospital, the Prudhœ Memorial Convalescent Home, the Tyne Floating Hospital, etc., etc. With 317 illustrations.

New York: D. Appleton & Company, 1, 3 and 5 Bond street. 1884.
Detroit: John MacFarlane.

The work before us is based on portions of a course of lectures, delivered on the principles and

practice of medicine, and on practical medicine and medical diagnosis to the author's class, in 1883-4.

For fifteen years he has made this subject one of constant study, and the accumulation of clinical knowledge, and the collection of pathological material for the production of this work.

The lithographs of naked-eye objects represent, with few exceptions, the hearts of patients who have been under his personal care during life, and whose clinical history he was intimately acquainted with. The microscopical lithographs are, with two exceptions, copied from sections made by himself. In fact, with few exceptions, the illustrations were each drawn by or under his own immediate observation.

The work is divided into six chapters:

The 1st Introductory, Anatomical and Physiological Remarks.

2d. The General Pathology of the Heart.

3d. Clinical Investigation of Cases of Heart Disease, and Methods of Case Taking.

4th. Diseases of the Pericardium, Acute and Chronic.

5th. Diseases of the Endocardium, Acute and Chronic.

6th. Diseases of the Myocardium, Acute and Chronic, with Fibroid Degeneration.

7th. Cardiac Neuroses.

8th. Diseases of the Thoracic Aorta—Acute Atheroma—General dilatation and Aneurisms.

The Appendix. The Cardiograph. Index.

This is a very valuable work and gives the reader full information on what is known of the diseases of the heart and thoracic aorta to the present time. The author is not egotistical; gives credit to those who have written before him, and does not hesitate to say what he knows himself. It is also well illustrated. It is really gratifying to the eye, instead of the old orthodox cuts, to look upon artistic work, new and instructive as well as illustrative. Without the context they are valuable independently.

The publishers have issued it in neat binding on beautiful strong white paper, and extra good print, and is creditable to the house of D. Appleton & Co. It is a pleasure to take up such a book to read, for it almost reads itself. It will form a valuable addition to the library of the general practitioner, and should be in the hands of every graduate of medicine, even before he leaves his alma mater.

Lectures on the Principles and Practice of Medicine. Delivered in Chicago Medical College, Medical Department of the North Western University, by Nathan Smith Davis, A. M., M. D., LL. D.; Dean of the Faculty and Professor of Principles and Practice of Medicine and Clinical Medicine in Chicago Medical College; Senior Physician to the Mercy Hospital, Chicago; Member and Ex-President of the American Medical Association, of the Illinois State Medical Society, and of the Chicago Medical Society; Member of the Illinois State Microscopical Society, Chicago Academy of Sciences, American Public Health Association; Honorary Member of the New York Academy of Medicine, and of the College of Physicians of Philadelphia, etc.

Chicago: Jansen McClurg & Co., Publishers. One vol., 8vo., 895 pages. Price, in cloth, $5.00; sheep, $6.00

The many students who have listened to the lectures given by Dr. Davis, will be only too delighted to know that they can read them over again in the handsome volume now on our table. For 50 years he has given constant attention to the profession and for a great share of the time, 35 years, has he been teaching the principles and practice. We have but few men whose whole lives have been so devoted as his, and but few, if any, better qualified to write a book on the subject. Eminently practical himself, so is his book. His clinical history of the various diseases is given from his own personal observation, and the methods of treatment laid down are the result of his own experience. The adoption of the metric system has been one of the longing desires of the author, and he is really the first to incorporate it in a work like this. The apothecaries weights and measures are given in brackets, which we consider very thoughtful, for to nineteen-twentieths, or even more, the work would have been in its dosage perfectly unintelligible. It is very evident that the English reading and writing community do not take kindly to the new idea. But few, if any, of the medical schools teach it, and were the profession to adopt it the apothecaries would be daily making dangerous mistakes, and the public would be in even a worse plight than the apothecaries.

Referring to the matter of remedies, we find they are based upon an intimate knowledge of their action; he has no pets, no one remedy for all diseases. Neither does he prescribe what are commonly known as "shot-gun prescriptions," that in the multitude of ingredients "some one will hit." In examining the book we were forcibly reminded of that celebrated work on the Practice of Medicine, by Sir Thomas Watson, that had no equal in its day, and we strongly suspect that that valuable work was the model after which this volume was prepared.

Every year is demonstrating that the West is no longer dependent upon the East for all the science and all the knowledge. A young practitioner with this book for his guide and counsellor, will be as thoroughly competent to treat disease as though he were furnished with the issues of Europe or the Atlantic cities. We take pleasure, therefore, in commending the book to the Medical profession of the United States.

A Practical Treatise on Diseases in Children. By Eustace Smith, M. D.; Fellow of the Royal College of Physicians; Physician to His Majesty the King of the Belgians; Physician to the East London Children's Hospital, and to the Victoria Park Hospital for Diseases of the Chest. Pages 844.

New York: William Wood & Co., 56 and 58 Lafayette Place 1884.

Detroit: J. MacFarlane.

This work is, in the broadest sense, a complete treatise on the diseases of children. In its personnel it has the appearance of a volume. Though new as an author Dr. Smith shows an intimate knowledge of what he writes, and a close examination of his labors demonstrates that he knows of what he has written. The work is divided into 12 parts exclusive of the introductory chapter, which discusses all those points pertinent to children when in health, and how to keep them healthy.

Part 1st. Acute Infectious Diseases.
2. General Diseases Not Infectious.
3. The Diathetic Diseases.
4. Diseases of the Ductless Glands and Blood.
5. Diseases of the Nervous System.
6. of the Organs of Respiration.
7. of the Heart.
8. of the Mouth and Throat.

9. Diseases of the Digestive Organs
10. of the Liver.
11. of the Genito-Urinary Organs.
12. of the Skin.

We find no omission of any disease incident to children, or of any other disease with which they in common with others may be attacked. To use his own language "he has not hesitated to admit into his pages descriptions of every form of illness which is capable of being influenced in its manifestations by the early age of the patient. Those only have been purposely omitted which, like diabetes, present exactly the same characters in the child as in the adult."

Statistics have been generally avoided, for unless dealing with enormous numbers, no trustworthy facts can be derived. In this we are perfectly in accord with the author. There is no truth in them; no dependence can be placed upon them.

Particular attention has been given to diagnosis and treatment, especially diagnosis, for without this being correct treatment is without avail. His advice as regards treatment is judicious, and is based on good common sense, a knowledge of the disease, and the applicability of the medicinal agent to remove it.

We believe it to be the best modern work extant on the subject, and as such we cordially commend it to every one, student and practitioner. Messrs. Wood deserve the thanks of the profession for their interest in placing the work before them.

Practical Manual of Diseases of Women and Uterine Therapeutics. For Students and Practitioners. By H. McNaughton Jones, M. D., M. C. H., F. R. C. S. I. & E., Examiner in Obstetrics, Royal University of Ireland; Fellow of the Academy of Medicine in Ireland and of the Obstetrical Society of London; formerly Professor of Obstetrics in Queen's University, Ireland; Consulting Surgeon to the County and City of Cork Hospital for Women and Children, and to the Cork Maternity; Surgeon to the County of Cork General Hospital; Senior Physician to Cork Fever Hospital; Surgeon to the Cork Ophthalmic, Aural and Throat Hospital; Demonstrator of Anatomy and Lecturer on Surgical and Descriptive Anatomy in Queen's College, Cork.
New York: D. Appleton & Co. 1, 3 and 5 Bond St. 1884.

This book was prepared by the author at the request of the publishers, who felt there was a field unoccupied by medical literature that, if cultivated, would turn to the benefit of the profession, and be the means of aiding in the cure of a certain class of diseases pertinent to the female, especially in a surgical point of view.

The book, therefore, occupies an intermediate space between works on obstetrics and modern gynecology, and in its practical bearing is to give that kind of information which will enable the ordinary professional man (not a specialist) to operate upon and treat a large share of the diseases that now are thrown into the hands of the special gynecologist. The author shows that the treatment of women's affections need not be a specialty, and unless he voluntarily discards them, he can, by a little extra study, be as competent as any other in their cure. We have thus briefly outlined the intentions of the author, and we must say that he has done good service in writing the book, and the publishers in having it written. We most cordially commend it to our readers. It can be obtained through J. McFarlane, Detroit.

The Lock-Jaw of Infants (Trismus Nascentium), or Nine Day Fits, Crying Spasms, etc. Its History, Cause, Prevention and Cure. By J. F. Hartigan, M. D., Washington, D. C. Member of the American Medical Association, etc.
New York: Bermingham & Co., 28 Union Square and 14 Cockspur St., London, Eng. 1884. Price, 75 cents.

This is a neat little book of 123 pages, on a subject that most medical men are interested in, more especially young practitioners and those making a specialty of diseases of children. The work is based on a discussion that had taken place in Washington, caused by the continued reports of a large number of cases of this disease by the health officer, which reports were not endorsed by the physicians of the place. The subject was referred to a committee. They did not agree. Several cases coming under the observation of the author, post mortems were made, when it was found there was usually a depression of the occipital bone, or that one side was overlapped by the parietal bone, with extravasation in posterior parts of brain and sphere. The question arose, Did their appearance demonstrate cause and effect? viz., mechanical pressure of the occipital or parietal bones on the brain through the intervening dura mater, finally expending its force on the pons, medulla oblongata and the nerves issuing therefrom. He found this theory advanced by Dr. J. Marion Sims thirty years before, when of Alabama. Two illustrations are given of the overlapping. Reference to authorities and citation of cases complete the book. It is really worth the reading and price.

The Medical Graduate and His Needs. By George C. Wellner, M. D.
Detroit, Mich.: George S. Davis, publisher, 1884.

This is a capital little book for a young man entering upon his professional life, to read. It is written by one who knows about what he is writing. It is full of choice advice. It is brief. Can be taken up at a leisure moment, and a chapter read. It contains much that is not taught in the schools, and fills a space not otherwise filled.

Exception to its orthography and diction may be taken, but when the reader knows that the author is German, proper allowances will be made. The main point is, "the meat is good." It is a valuable little book. As before stated, every graduate should have a copy.

A Manual of Obstetrics. By Edward L. Partridge, M. D. Professor of Obstetrics, New York Post-Graduate School Instructor in Obstetrics, College of Physiology, New York City, etc. etc. With 60 illustrations.
New York: W. Wood & Co., 1884.
Detroit: J. McFarlane.

As manuals run, this is a very good one. The young doctor can easily put it in his pocket, and while waiting for nature's sometimes tedious efforts in the obstetric chamber, can spend his time in burnishing his memory and preparing for difficulties, and no one be the wiser.

There is much good in a small space, and we believe the book will answer a good purpose.

Transactions of the Medical Society of the State of New York for the year 1883. Published by the Society.

We are indebted to Dr. Wm. Manlius Smith for this neatly printed and neatly bound copy of the N. Y. Medical Society's transactions. It contains several good papers and a list of all its members, together with those of the county society in affiliation with it.

Medical Record Visiting List for 1885.

We take pleasure in informing our readers that the Messrs. Wood have ready for issue this valuable visiting list for 1885.

The copy before us maintains the reputation of its predecessors, and, we think, cannot well be excelled. We do not hesitate in commending it.

ANNOUNCEMENTS RECEIVED.

College of Physicians and Surgeons, Baltimore; Baltimore Medical College; Louisville Medical College; Medical College of Virginia; McGill University Med. Dept., Montreal; Med Dept., Bishop's College, Montreal; College of Physicians and Surgeons, Boston, Mass.

Therapeutic Progress

Euphorbia Pilulifera, Fijian Varieties.—When, some three or four years ago, we published our first illustrated and descriptive notice of the euphorbia pilulifera, or "Queensland Asthma Herb," it was not known that the species was indigenous to Fiji as well as to Queensland. Through the illustrations and descriptions given in our article, it was soon recognized, and specimens of two or three varieties of it were forwarded from Fiji for identification to Mr. T. W. Shepherd, of this journal, who had taken great interest in introducing the Queensland herb to the notice of his fellow Australians, as a valuable medicinal plant, capable of easy naturalization, and one which would eventually become a "road-side weed." Of course, previous to undertaking this work, Mr. S. had thoroughly satisfied himself of its efficacy by numerous trials in cases of asthma, bronchitis, and other bronchial and chest affections, besides procuring the best available chemical analyses in order to detect any injurious or poisonous properties that it might contain as well as the therapeutic one for which it had been employed. These analyses were entirely satisfactory, no deleterious property whatever being discovered in the dried herb. This was very gratifying because the euphorbia family is a very dangerous one indeed, and eventually it turned out to be still more gratifying, because it was the means of saving the public from an attempted bare-faced imposition. Tempted by the publicity gained for the virtues of the herb, through this and other journals, some parties put certain preparations of it upon the market, and having gained access to the columns of some leading journals in this and other colonies, boldly asserted through them, and in other ways, that the herb contained poisonous properties, and was unsafe as a home or household remedy, unless those ingredients were eliminated by some scientific process known only to the parties concerned. The same parties also impudently asserted that it had been clearly demonstrated by many actual trials of both seeds and living plants, that the *euphorbia pilulifera* could not be naturalized even so far south as Brisbane, and this in contradiction of our oft-repeated opinion that it would certainly flourish, so far as climate was concerned, in any part of New South Wales, and that it was almost certain to be naturalized and, as above stated, a road-side weed within a few years. Not only were we thus contradicted without a shadow of truth, but the fact remains that the herb is actually indigenous, and may be found any day growing naturally in the vicinity of Brisbane. We may add here that the herb has since grown so well in some of our coldest districts—Monaro, Bega, and Braidwood, for instance, that it has actually been already hoed up, in a few instances, as a weed. We will say no more on this point now, but farther on shall have something to say about the many failures of seed reported to us.

Previous to the publication of these injurious, impudent and scandalous reports, intended to deceive and prey upon the public, we had gratuitously distributed small quantities of the dried herb and its seed to those of our subscribers who applied for it. The herb was for trial as a remedy, and reports of results were to be forwarded to us. After this scandal, however, Mr. Shepherd was so indignant that, in defence of the public in general and this journal in particular, he determined to do his best to thwart the scheme, and immediately communicated with friends both in Queensland and Fiji, and procured a large supply of both the herbs carefully collected and cured, according to his own special directions, and the seed. This he advertised extensively for distribution in postal packets, at a small charge, to help to reimburse the large expenditure incurred both in procuring the herb and advertising it, and this he has ever since continued to do, and as he has found that the Fijian varieties, known there as the white and red, have given more satisfaction than any he has received from Queensland, he has latterly distributed the former only, and it has now become familiar in all the colonies as a capital remedy for asthma, and in fact all bronchial and catarrhal chest complaints. The two varieties named are not grown nor cured separately, and there does not appear to be any difference other than the color of the foliage. Here we may remark that the red color is not merely accidental, as many plantsmen would be apt to think, but the dark-red color is permanent as proved by sowing the seeds in different soils and finding the same color maintaining. Owing to these facts, as well as to the special care of the herb, both while growing and in curing, according to directions given by Mr. Shepherd, it has become common to speak of the Fijian grown euphorbia pilulifera as T. W. Shepherd's "Asthma Herb."

We would now offer some explanation in regard to the many failures of the seed to germinate, and which make it appear that it is unlikely that our opinion as to the herb eventually becoming a road-side weed will be verified. It is quite likely that not more than a small percentage of those who have sown the small post packets of seed distributed have found it to germinate. Yet that is sufficient to prove that it possessed vitality. We know of several instances in which the sown seed failed, but some that had been accidentally spilled had sprung up and grown luxuriantly. In one case where seeds had been sown five or six times without success, some plants sprung up in the crevices of a brick pathway, and no person could say how the seed got there. But the clearest case of all is furnished from Queensland itself, by one of Mr. Shepherd's correspondents who had arranged to grow for him one acre of the herb. The land to be devoted to the crop was situated within a short distance of Rockhampton, and the herb was natural to the soil, quantities being ploughed under in preparing the land. The attempt was a complete failure. The land had been prepared by a thoroughly competent person (the said correspondent), and was ready for seeding in spring. It was seeded accordingly, but it was a failure, and so were three other heavy seedings during the spring and early summer, the result being a crop weighing some 300 pounds instead of one-and-a-half to two tons, as expected. Now the seed, collected by the sower himself, in the vicinity of the land to be sown, was known to be good seed, a portion of the batch having been tried in Sydney; what then could be the cause of its failure? It is hard to answer this question. It would almost appear that the plant is so essentially a roadside weed that it refuses to grow in any other situation. Our opinion is that seed probably germinated freely enough, but died or was eaten up by insects before the resulting plants were large enough to be noticed. Either theory may be correct. The little seedlings may require a solid, hard seed-bed, and in the well-tilled soil they did not find a congenial home, and so withered away in a few days after germination; or, being so very minute, they might easily become the prey of many species of minute insects. We think

the two combined to be the most probable. We find the plant spring up and flourish on paths and hard bare spots where there were neither loose soil nor harbor for insects, while the sown seeds close by failed altogether.

Notwithstanding all this the seeds are produced in such vast profusion that wherever a plant gets fully developed its annual presence as a weed is fully assured. The seeds are shed daily for several months, and distributed around, so that if only one seed out of a thousand grows there will still be enough to give the plant the right to be called a weed. This is the experience of all in this colony who have got so far as one good plant as the starting point, and therefore we still hold to our original opinion, although it may not be verified so soon as we originally anticipated.

We do not think it necessary to say much about T. W. Shepherd's Asthma Herb, in regard to its value as a remedy for the class of complaints claimed for it, as that is now fairly established. Still there are many who have prematurely condemned it through lack of patience to give it a fair chance. It is true that there are numerous cases in which sufferers have professed themselves cured by a very few doses; but there are a much greater number who are now enthusiastic in its praise although they had found no beneficial results till after numerous trials. It should also be remembered that before condemning any herb it should be ascertained whether the herb used was the one it was said to be, or some other resembling it in appearance, though not otherwise. Again, has the sample used been properly cured, or has it been rendered worse than useless by bad curing, exposure to sun and rain? It should not be forgotten that now the herb has become a popular remedy, large quantities are collected by persons without the requisite knowledge to avoid collecting more herbs than the one intended, nor to know how to cure it properly. It is unfair to the herb itself and unfair to the public to proclaim failure unless all these matters have been satisfactorily cleared up. It is quite common for the natives to be employed to collect the herb; and it is a fact that we have seen perfect rubbish brought to Sidney and sold as euphorbia pilulifera, which a portion of it was, but it had all been spoiled by exposure to the weather.

All this will be avoided, at any rate in rural localities when the herb shall have become a common roadside weed, as we have from the first maintained it would. People may then know that they are using the real thing. It has, however, yet to be proved whether, when grown in a cooler clime than is natural to it, the therapeutic principle will be as efficacious as when grown in its natural home. Our opinion is that it will be equally efficacious, though perhaps requiring more for a dose, the seed principle being probably less abundant in a given quantity, owing to the more temperate climate in which it had grown.

It is a very common belief that there are simple herbal remedies for almost every common complaint, and there is little doubt that there is a good deal of truth in the belief. In regard to the herb under notice there can be no doubt that it has proved efficacious in a very great majority of cases in which it had been fairly tested. Indeed if the herb has been cared for during its growth, and systematically cured; as before explained, there has not been a case of failure reported when the trial had been according to the directions given. It has been reported through the press that since the virtues of the herb have been made known through this journal, that the Fijian planters have largely profited by its use as a remedy for influenza amongst their kanaka laborers. It has been shown that these people are very subject to this complaint, and until this asthma herb was discovered the planters suffered much pecuniary loss from the loss of the time of these people, each one being every now and again laid aside as useless for a week or more. This alone speaks volumes in favor of the Fijian varieties, at least, of the Euphorbia pilulifera, or T. W. Shepherd's Asthma Herb, as it is now commonly called. But besides this there are numerous letters from all parts of this colony, as well as from the sister colonies, New Zealand and even California, many of these referring to the virtues of the herb in the most enthusiastic terms. The letters are spontaneous, and from entire strangers. So satisfied are we of the value of the herb, that we strongly advise all who may have tried the herb and considered it or no use in their cases, to make another and more determined trial. This advice is especially applicable to those cases in which there was no certainty as to where the herb came from, and by whom it had been cared for while growing and curing. We would also advise everyone who possesses the land and wishes to serve his country, to persist in trying to cultivate the plant. From what has been said it will be seen that the best way to succeed would be to sow on a bare, hard seed-bed. A good plan would be to scatter a pinch of the seed about the sides of the paths in a garden, or on beds that had been some time cropped. The only difficulty in this place would be the liability to have any plants that may have survived cut up as weeds, if the parties should not be able to identify the stranger.

We feel quite certain that had it not been for the articles in this journal and Mr. Shepherd's public-spirited exertions, this herb would have been long ere this forgotten, and many hundreds of sufferers from chronic asthma who are now happily relieved would have been sufferers still. Instead of this it is now certain that the simple remedy will be availed of by millions yet unborn. We trust that our friends will use their best influence to promote the naturalization of the herb, so that it may ere long be available to all, "without money and without price."—*Town and County Journal*, Sydney, Australia, Aug. 1884.

[I am glad to see that Mr. T. W. Shepherd agrees with the statement I made two years ago as to the efficacy of euphorbia pilulifera in asthma, bronchitis and other bronchial and chest affections. I would like every physician in the United States to give this new remedy a fair trial in any of the diseases mentioned above. I saw in one number of the GAZETTE that one doctor reported that the drug was a failure in his hands. I don't deny that such might have been the case, but was ever a medicine discovered that did not fail sometime or another, before its efficacy was properly established? I would, therefore, say if it fails the first time, don't throw it aside and say it has no merit. Give it a second trial. I have had every opportunity of testing the euphorbia pilulifera and have found the happiest results from its use. I feel satisfied that it will yet become the great cure for asthma, besides being useful in many other chest affections, such as bronchitis, etc.—Dr. Matheson, Aramac, Queensland, Australia.]

Cocaine Hydrochlorate, the New Local Anæsthetic.

[The following symposium on the effects of the muriate of cocaine in mucous surfaces, is from the Medical Record of the 18th. ult. The results as reported are certainly very remarkable, and if they are verified by subsequent experience the discovery will prove to be one of the most important of recent years. ED. THERAPEUTIC GAZETTE]:

"In your last issue is a letter from our distinguished colleague, Dr. H. D. Noyes, in which there is an allusion to the new local anæsthetic, hydrochlorate of cocaine, as recently discovered and applied in Germany. We have to-day (October 14, 1884) used the agent in our clinic at the College of Physicians and Surgeons, with most astonishing and satisfactory results. If its further use should prove to be equally

satisfactory, we will be in possession of an agent for the prevention of suffering in ophthalmic operations, of inestimable value.

It is difficult to avoid expressions of extreme enthusiasm in view of what we have to-day seen and in view of what we may rationally expect from the further applications of the agent. The following cases, however, will be of more value than any abstract disquisition.

CASE 1.—A. E——, aged five; a case of convergent squint. A two-per-cent. solution of the hydrochlorate of cocaine was dropped upon the surface of each eye three times, at intervals during a period of fifteen minutes, without any more irritation of the eyes than would have been caused by drops of common water. At the end of twenty-five minutes he walked into the operating-theatre, laid down upon the operating-chair, and allowed the spring speculum to be inserted between the eyelids, the scleral conjunctiva to be seized with fixation forceps and cut with scissors, and the rectus internus of the left eye to be divided without complaining or showing any signs of suffering. When we had the internus tendon upon the strabismus hook, he said we were pulling something.

CASE 2.—L. H. B——, aged eleven; convergent squint. Solution applied as above, three times in fifteen minutes, at the end of which time he sat erect in a chair, resting his head upon the breast of an assistant, had the speculum inserted, scleral conjunctiva seized with fixation forceps, and the internal rectus divided in the usual manner, and when asked said the operation had given him no pain.

CASE 3.—Joseph McC——, aged six; convergent squint. Solution applied as above. In the delays of the clinic somewhat more than half an hour elapsed between the last instillation of the agent and the attempt to operate. The youngster seemed to be much frightened by the presence of the surgeon and students; would not submit to the proposed strabotomy, and ether had to be administered before it could be done. As his scleral conjunctiva was insensible to the contact of the fixation forceps fifteen minutes after the first instillation of the solution, it is a fair inference that the anæsthetic benumbing had passed away before he entered the operating-theatre. His nervous apprehension was so great that he would not have endured an operation even though there might have been no real pain inflicted.

CASE 4.—James McG——, aged fifty-two, was sent to the clinic with the statement that he had a lacerated wound of his left eyeball involving the sclerotic. His dread of handling and of light was so great that we could get no view of the injured organ, as every attempt to inspect it was instantly followed by blepharo spasm. A few drops of the solution were instilled, and in a few moments the patient walked into the operating-theatre with the injured eye open and so free from irritability as to make an examination of it before the students quite easy.

CASE 5.—J., a physician, aged seventy-one, with double cataract, consulted us on October 15th. His eyes were extremely sensitive to touch. A drop of the two-per-cent. solution was dropped upon the scleral conjunctiva, and within two minutes and a half the patient permitted me to apply the end of a forefinger to the scleral conjunctiva without wincing.

The solution used in all these cases was a two-per-cent. one, made with distilled water and with Merck's crystals of the hydrochlorate of cocaine.

It is only by extensive gathering of the clinical facts in regard to this new agent that we can reach just conclusions as to its value, and it is important that all observers should give the profession the benefit of their experience. The operations at the clinic alluded to above were done with the assistance of Dr. David Webster, Dr. W. Oliver Moore, Dr. Neil J. Hepburn, and Dr. W. A. Pierrepont, and in the presence of the class.—Professor C. R. Agnew, M. D., New York.

Cocaine has been known since 1855, and is the active principle of the leaves of the Erythroxylon coca, a South American plant, the leaves of which resemble very much those of the tea plant. Many of the natives during hard work use these leaves, chewing them with some alkaline substance, going without food the entire day, but taking their food at night. It has long been known as a powerful stimulant. Cocaine hydrochlorate is of more recent origin, and the anæsthetic effect of it when brushed or dropped on mucous surfaces has been only known about a year, it having been used in Germany first by the laryngologists, to produce anæsthesia of the vocal cords and surrounding parts to facilitate manipulation. In this journal, page 417, in a letter from Dr. H. D. Noyes, of New York, an account is given of an experiment made with this drug before the Ophthalmological Congress, at Heidelberg, where a solution of the cocaine hydrochlorate was dropped into the eye, the result being comple e anæsthesia of the conjunctiva and cornea. Dr. Noyes is justly enthusiastic on the subject, and his letter caused me to obtain some of the drug for experimentation, the result being annexed.

A two-per-cent. aqueous solution of the cocaine hydrochlorate (Merck's) is procured and dropped into the eye, two drops being sufficient at first; the eye is then closed, and in five minutes two more are instilled; after five minutes more have elapsed, as a rule, anæsthesia is complete; if not, then two more drops may be used. There is no pain attending the application.

The following experiments were made with very satisfactory results:

CASE 1.—Chinaman, with keratitis. Two drops of a two per-cent. solution of the cocaine hydrochlorate were dropped into the left eye, then closed; after five minutes two more drops were used; at the end of fifteen minutes from the first instillation I was able to grab the ocular conjunctiva with fixation forceps and move the eye in any direction without pain or any disagreeable sensation. The ulcer of the cornea was also touched and gently scraped without sensation. In the right eye, where none of the drug had been used, the patient made loud demonstrations of complaint on my attempt to use the fixation forceps, as in the first instance; in short there was a marked difference in the eyes. The anæsthetic effect in the right eye had entirely disappeared in thirty-two minutes from the beginning of the experiment.

Case 2.—Man, aged thirty-seven, with double pterygium. In one eye, the left, I put two drops of the solution, and after waiting five minutes introduced between the lids two drops more; after another interval of five minutes two more were used.

Five minutes after the last drops were used the operation was begun, the pterygium being excised by scissors, the conjectiva being freely cut, and the cut surfaces brought together by three sutures. This usually painful operation was done with the utmost ease, and without any painful, sensation, the patient being surprised at its completion.

In the other eye the cocaine was not used, and the pain and suffering of the patient were, as usual when ether is not used. The effect was very marked, and really very surprising. The anæsthesia lasted twenty-five minutes.

CASE 3.—Child, seven years old, having squint (strabismus convergens). Two drops of the solution were put into the squinting eye, and repeated as in the other cases till six drops in all had been used during the space of fifteen minutes; at the end of which time the conjunctiva was sufficiently quiet to allow of the tenotomy of the internal rectus muscle, the usual operation being performed, the spring speculum being used. The little boy made no complaint of pain, and simply said the speculum stretched the lids, but was painless That is unusual; for a child of this age to allow an operation of this sort to be done without ether is at least a marvel, and to show that the patient, though young, had not "pure grit" the other eye (the one in which no cocaine had been used) was tried, and found to have the normal sensations.

I have tried it in other cases, yet this will suffice to bring it before the notice of the profession at once. Several of my confrères at the New York Eye and Ear Infirmary and elsewhere, have used the same solution with good effect. Much more will be written on this subject, as it has a wide application, and we have yet to learn much of the properties of the alkaloid. The introducer of this new and truly magical preparation is a student in Vienna, Dr. Koller, *vide* Dr. Noyes' letter above referred to. I hope to say more of its practical value at another time.—William Oliver Moore, M. D., Professor of Eye and Ear Diseases, New York Post-Graduate Medical School and Hospital.

The last number of the Record contained a short account of the proceedings of the Heidelberg Ophthalmological Congress, by Dr. H. D. Noyes. He speaks of the anæsthetic effects of the muriate of cocaine, and of its probable future in ophthalmology.

I have had an opportunity of using the drug on several cases, and with such beneficial effect, that I deem it important enough to lay before the readers of the Record.

I used a two-per-cent. solution, kindly furnished me by Dr. Moore, after the manner described by Dr. Noyes—viz: Two drops were dropped into the conjunctival sac, and in ten minutes this was repeated, and the operation was performed ten minutes later.

CASE 1.—A nervous boy, aged ten, upon whom I had operated for squint in the left eye three days before, presented himself on October 13th, with the conjunctival stitches still *in situ*. The solution of cocaine was instilled as above described. The cornea and the conjunctiva could be brushed with the end of the finger, without causing any uncomfortable sensation. The speculum was introduced, the stitches removed, the conjunctiva was grasped with fixation forceps, and the globe was pulled around by them. The child complained of no pain, and when asked after it was over if he had been hurt, he replied in the negative. The other eye retained its sensibility, and could not be handled in the least.

CASE 2.—A woman, aged fifty, upon whom I had performed a preliminary iridectomy a few weeks before, came for the extraction of the cataract on October 13th. She was nervous and very resentful of anything disagreeable or painful. When the iridectomy was performed, I attempted to do it without an anæsthetic, but found it utterly impossible to even retain the speculum between the lids, and resorted to ether. I decided to use the cocaine, and dropped it in the eye, on which she shrank back and closed the eye as tight as possible—resenting even this much handling of the eye—for the solution is non-irritating to the conjunctiva. The second application was made without difficulty, and I could rub my finger over the conjuntiva and cornea without causing discomfort. The speculum was introduced, the conjunctiva was grasped with fixation forceps, and the globe thus pulled in position. A large section of the cornea was made, and cystotomy and delivery of the lens were easily accomplished. The patient complained of no pain, and after the operation, and on the following day, declared that she had not been hurt in the least. She was even surprised when told that the operation had been performed. Immediately after the operation I tested the sensibility of the conjunctiva of the other eye, by lightly touching it with my finger. She shrank and closed the eye so quickly and violently that I feared the other eye would suffer from the violent contraction of the lids. The case has progressed, so far, as satisfactorily as could be desired.

Should cocaine in the hands of others meet with the same success that I have attained, it will mark an era in ophthalmology unsurpassed by any in modern times. Its use in other branches of medicine and surgery may be almost as important as in ophthalmology.—James L. Minor, M. D., Assistant Surgeon, New York Ear and Eye Infirmary.

Remarks on Gynæcological Therapeutics.*—I propose to run over very briefly the principal therapeutic agencies that I employ in my clinique at the New York Hospital, Out-Patient Department, stating what I conceive to be the indications for their use and the objects aimed at, and, so far as I can, the results believed to have been attained. Unfortunately, it will not be possible to formulate these with precision, the same remedies finding an appropriate use in numerous classes of cases, various affections existing in multiform combinations, and very many of the cases being chronic, and a good number curable by surgical procedures only, which are often of necessity almost indefinitely postponed. Still, I hope it may not be unprofitable to make such a review, for the sum of professional opinion regarding matters of every-day treatment is not made up from laboratory experiments in nearly so great a degree as from the observations of individuals, and even such humble contributions as this may modify or strengthen the views of my hearers, or, as I certainly hope, may elicit discussion and criticism here.

I use pessaries, chiefly the Albert Smith, the Thomas bulb, and the elastic ring; these for backward displacements; and as such are in my experience much more frequent than anteflexions, I have much less occasion to employ instruments for the relief of the latter. For cases of prolapse with a heavy uterus and a damaged perinæum, I believe that such instruments only as have an external support would be of any value. Simple abdominal belts or supporters will often obviate the need of pessaries, especially in anterior displacements. I can not enter more fully into this topic.

Cutting operations of any importance, and even curetting, are inadmissible in patients who have to return on foot to their homes immediately after treatment, and therefore are not referred to at this time.

In regard to the hot douche, it is ordered in almost all cases as a matter of routine, and I find that in the class of patients I see at this institution there are few who cannot afford a bed-pan. I therefore give explicit directions to them to use the syringe in connection with this article and in the recumbent position, using two or three quarts of water, as hot as it can be borne. I always try to make sure that the nozzle does not have a terminal orifice, and in cases of patulous os uteri, or where complaint is made of pain after using the douche, I advise the bent and partly flexible nozzle devised by Dr. F. P. Foster.

Ergot is used in gynæcological practice chiefly with three objects: one is to effect a reduction in the size of the uterus by promoting the contraction of its muscular elements and reducing the caliber of its blood-vessels, another is to check uterine hæmorrhage, and a third is in the treatment of intestinal and submucous fibroids. I would say that for nearly two years past I have employed the preparation of ergot made by Parke, Davis & Co., under the name of "liquor ergotæ purificatus," (Normal Liquid Ergot), and which I first tried on the recommendation of Dr. T. A. Emmet, who found it less nauseous and commonly better borne by the stomach than the fluid extract of the pharmacopœia. I have seen no reason to doubt its efficiency, and have met with few complaints of difficulty in taking it. Ergot when given with the first object has been eminently unsatisfactory. The cases in which I have used it have been mainly those of subinvolution, often associated with a greater or less degree of laceration of the cervix. In combination with the ergot, the local treatment has usually aimed at an unloading of the vessels of the uterus by the action of glycerin tampons and stimulating the blood-vessels to contract by the hot douche. Even after the use of the drug had been continued in some instances for many weeks, repeated measurements with the sound

* Read before the New York Clinical Society, April 25th, 1884.

showed little or no decrease in the length of the organ, although the general symptoms of the patient and the appearance of the vaginal portion of the uterus indicated improvement. Patients with subinvolution, thus associated with and doubtless referable to lacerations of the cervix, are not apt to present themselves at the hospital until months after the confinement at which the injury was received—after a period, namely, during which the hæmorrhages, the leucorrhœa, the displacements, or other results of the original lesion have been developed, and have become the incentives which brought the patient for treatment. By this time the reconstructive impulse in the uterine fibers which exists after delivery and effects the involution of the organ, has well nigh ceased, and the fibers no longer respond to the stimulus of ergot, to which they were so sensitive at an earlier period. I can hardly say that I have proof of the value of ergot given simply to arrest uterine hæmorrhage, although there are many cases in which I should feel that I was not right in withholding it. Still, in these same cases other measures, such as the hot douche and swabbing the uterine canal with tincture of iodine, are likewise resorted to—the effects of which are more palpable—so that one remains uncertain what the share of the ergot has been when the flow is checked. Few cases have presented themselves where the third use of ergot could be observed. The greater number of such probably find their way into hospital wards, and I have nothing to report in this connection.

There are cases of prolapsus uteri in the third degree, notably among washerwomen, or others leading laborious lives, who have to stand much and lift heavy weights. Many such have doubtless had their origin in a laceration of the perinæum, complicated probably with a subinvoluted uterus, and when they apply for treatment can not afford the time required for operation, even though, in the case of some, nothing short of a closing of the vaginal orifice would secure them from a recurrence of the prolapse. Such patients have been benefited by the frequent introduction of cotton tampons saturated with the glycerite of tannin, and by a douche of *cold* water, to which I have sometimes added a few drops of the persulphate or perchloride of iron.

This may lead to the subject of iron. In a practice where no cutting operations can be performed, the need of those preparations of iron which are used locally as direct hæmostatics does not exist. I believe the tincture of the chloride of iron has a decided value in checking metrorrhagia, when given only on such occasions, but I also believe that the continued use of large doses of this drug by women who are liable to excessive flowing, tends to aggravate rather than relieve the difficulty. This may be due in part to its constipating action, although this can generally be obviated by combining with it the tincture of nux vomica. When anæmia is the most prominent feature, I rely chiefly upon Blaud's pills, finding them easily administered and assimilated, and less likely than some other preparations to occasion constipation or headache.

In that very coommon group of symptoms, viz., backache, constipation, leucorrhœa, "general debility," and moderate pelvic inflammation, I derive the most satisfactory results from the well-known combination of the sulphates of iron and magnesium with sulphuric acid, and perhaps a bitter infusion, given largely diluted. This is, of course, supplemented by the hot douche and by glycerin tampons.

It is almost needless to say that that a very large number of cases receive hardly any other treatment than the hot douche, local application of Churchill's tincture of iodine, supplemented by the glycerin tampon, and the exhibition of cathartics, preferably the salines, or those containing senna. I commonly use the mixture of sulphates mentioned just now, the compound licorice powder, or an infusion of senna, quassia, anise, and bitartrate of potassium, which latter serves a good purpose in relieving the flatulent dyspepsia which is so frequent an accompaniment of these affections. A measure on which I place no little reliance when the cervix is found engorged, firm and dark, is scarification, repeated every few days; and under its use, even though the amount of blood drawn be but a few drachms, I have seen cervical catarrh diminish, erosions heal, and the vaginal portion of the uterus recover its natural consistence and tint.

I have not learned how to use either cannabis indica or hamamelis for the relief of uterine hæmorrhage, although I have made some trial of both; but gallic acid I find efficient for this purpose and usually give it in doses of ten or twenty grains, dissolved in alcohol, to be taken in a wine-glass of water.

Ovaries, whether displaced or not, are often sensitive and painful enough for that symptom to demand special attention, and I have employed various sedatives, both by themselves and more commonly in connection with derivatives and counter-irritants. Thus, I have used blisters externally, as well as tincture of iodine; also tincture of iodine by itself and mixed with tincture of aconite root, painted upon the vaginal mucous membrane, as near as may be to the sensitive organ; belladonna by the mouth and applied *per vaginam* in an ointment with iodoform, as also the fluid extract of eucalyptus; bromide of potassium also by the mouth. I conclude that little direct relief to pain comes from any of these sedatives as applied *per vaginam*, any apparent good being more properly referable to the support furnished by the cotton tampon, and to the derivative action of the glycerine with which it is often impregnated. Undoubted and prompt relief has been seen to follow a blister, and more gradually the painting of tincture of iodine over the painful region in the groin. It has appeared to me that something has been gained by the persistent administration of bromides and belladonna.

It is easy to satisfy one's self of the deodorizing, and presumably of the antiseptic, properties of the eucalyptus, even if it does not now maintain its reputation as an anodyne.

Here I may refer to two articles which have done good service in relieving the pain of dysmenorrhœa, viz., small doses of chloroform given by the mouth, according to an old formula, with camphor and peppermint water, and, secondly, chloral given as an enema.

As antipruritics, and to dull the sensibility at the orifice of the vagina in the slighter degrees of vaginismus, nothing has been so satisfactory as carbolic acid penciled on, or a 1.to-1,000 solution of bichloride of mercury. This latter salt, in a weaker solution, has proved most serviceable also in some cases of obstinate vaginal leucorrhœa, presumably of gonorrhœal origin. The infection appears to lurk in the follicles of the mucous membrane, especially of the fornix vaginæ, a region which ordinary douching and modes of dressing fail to act upon so effectively as upon the lower and more accessible portions of that canal, partly, no doubt, because there is here less distension of the mucous membrane, the deeper recesses of the folds thus escaping the action of the medicaments employed.

Finally, I may mention two drugs which, in my experience, have not deserved the reputation claimed for them by some recent writers. These are viburnum, as a uterine sedative, and apiol, as an emmenagogue.—J. H. Emerson, M. D., in *N. Y. Med. Journal*, August 9, 1884.

Trachoma and Jequirity.—To those who are interested in the etiology and treatment of this common, but most troublesome, complaint, we commend the very able and exhaustive paper of Dr. J. A. Andrews, of New York, in the last number of the *Archives of Medicine*. Dr. Andrews assigns as the *raison d'être* of the paper, the importance of the sub-

ject itself, owing to the frequency with which the disease is met in practice, its obstinacy in resisting treatment, and the amount of controversy to which it has given rise; also to the fresh interest that attaches itself to it, from the recent introduction by Dr. de Wecker, of Paris, of jequirity for its treatment, and for the new view of its etiology advanced by Prof. Sattler, of Erlangen, viz: that it is due to the presence of a micrococcus.

Dr. Andrews' investigations lead him to conclusions diametrically opposed to those held by Sattler. Having examined over 1,500 sections of trachomatous tissue prepared most carefully with a variety of staining agents, he can only say that "if these micrococci actually do exist in the trachoma tissue, I have never been able to find them," Dr. Andrews maintains, however, that Professor Sattler's views must be received with consideration and respect, and that the subject is open to further investigation; he merely records, most carefully, the methods adopted by him in his investigations, and his own want of success in coming to like conclusions as to the existence of a *special trachomatous micrococcus*. Trachoma is essentially a disease attendant upon insanitary surroundings, and a condition of lowered vitality. According to Dr. Swan M. Burnett, of Washington, the negro race appears to enjoy a special immunity from this disease. He says that he has examined one thousand negroes without finding a single case of trachoma amongst them. It is not said, however, whether the conditions of life in which these negroes lived were such as would make it likely that they should be predisposed to having the disease. Trachoma has been styled "the Celtic disease." In Southern Russia, Mandelstamm states that trachoma constitutes 35 per cent. of eye affections. Dr. Andrews says: "If I deny the existence of a bacterium in the trachoma tissue, it is still very probable that micrococci are the real provokers of the contagion, and that these should be sought in the secretion, and not in the conjunctival tissues; and further, that a particular diathesis, and climatic and hygienic conditions, also play a very significant part in the production of this serious disease." The nature of the diseased process is not yet decided; some maintaining that it is simply inflammatory, others that it is specific. The controversy as to the existence or non-existence of follicles in trachoma is noted, and the various authorities on the subject are cited at some length. The author of the paper bases his own conclusions upon the experience gained in the examination of forty-seven cases, evidently most carefully observed. He gives, with minute attention to details, the result of his observations upon the morbid changes that take place in the conjunctival membrane. These observations are well worthy of careful study. He evidently favors the view that follicles are to be found existing in this disease, and thinks that the action of jequirity finds a partial explanation in the assumption that the existing follicles are destroyed, and the further development of others prevented, by the serous infiltration of the conjunctival tissue, which it occasions.

In that part of the paper devoted to treatment, he strongly opposes the free use of caustics as likely to substitute one form of mischief, and possibly the most injurious, for the other. Unless used with great care and intelligence, the free use of caustics is likely to result in the destruction of the conjunctival tissue from the process of cauterization after the granulations have been destroyed. Dr. Andrews favors, as a *dernier ressort*, excision of the cul-de-sac of the conjunctiva, first performed by Richet, and more recently advocated by Galezowski. The following are the directions he gives for performing this operation: "Seize the superior or inferior cul-de-sac, as the case may be, draw it away from the tarsus, and excise the whole length of the cul-de-sac." The cul-de-sac is detached entire, without touching the tarsus or the conjunctiva bulbi. *The granulations of the tarsus must not be excised;* the cicatrization that would follow would be infinitely more injurious than the granulations themselves, and the latter in this position are much less rebellious to treatment than those of the cul-de-sac. Astringents must be employed after excision. The close of the paper is occupied at great length with the effects of jequirity in the treatment of trachom, a the subject being entered into most minutely in all its phases. To all who are interested in it, we recommend a careful perusal of the article itself. Jequirity is the short native name given by the native Brazilians to the more scientifically named plant, the *Abrus precatorius*. It is a twining, woody shrub, indigenous to India, but now found in all tropical countries. Its virtues in the treatment of trachoma were first made known by Dr. de Wecker, of Paris, in the number of the *Annales d'Oculistique* for July and August, 1882. In preparing his infusion, Dr. de Wecker pulverised thirty-two of the berries (about three grammes by weight), and macerated the product for 24 hours in 500 grammes of cold water; 500 grammes of hot water were then added; immediately the liquid cooled it was filtered. The directions were for the patient to bathe his eyes with the lotion thus prepared three times in the day. This may have to be repeated for three days, but a repetition of the application must be regulated entirely by the severity of the resulting inflammation. If severe, one day's bathing will be sufficient. Dr. Andrews, in his method of preparation, deprives the berries of their husks by cracking them in a clean linen bag. He then grinds them in a small pepper mill; cold distilled water or glycerine is then added, and the mixture allowed to stand aside for five or six hours. It is then filtered and the preparation is ready for use. He keeps solutions of varying strengths, from 1 to 5 per cent. The milder solutions are the most useful; the stronger ones must be used with great caution, and chiefly confined to where the changes in the conjunctiva and cornea are more advanced, and in which the conjunctiva is dry, degenerative changes having taken place. He applies the infusion to the inverted eyelid by means of absorbent cotton wrapped about the end of a match and dipped in the infusion. The application is repeated two or three times during the day, the result being then waited for. *When the cornea is not involved, he makes a single application of a fresh one-per cent. infusion, and waits thirty-six hours before repeating it, or a stronger (two per-cent.) infusion.* The infusion should always be used freshly made. Dr. de Wecker advises its use in: 1. Forms of torpid ulcers of cornea, facette ulcers, and principally cicatricial keratitis. 2. Strumous pannus tennis. 3. In conditions consecutive to parenchymatous keratitis, infiltrations and sclerosis. The following is given as the evolution of the jequirity inflammation:

"After a single application of jequirity infusion to the eye there is no perceptible change for several hours; the phenomena develope at first slowly, and after four or five hours there may be only a slight increase in the flow of tears; after eight hours the hyperæmia may be only slightly pronounced, but after twenty-four or thirty-six hours the eye presents the picture of a pretty intense inflammation. The lids are swelled and matted together and in the case of a human being, very painful to the touch. After forty-eight hours the tarsal conjunctiva is generally covered with a more or less adherent whitish or greyish-yellow membrane. The secretion is generally muco purulent; the palpebral conjunctiva is also greatly swelled and firm, and the ocular conjunctiva is frequently, especially in the delicate rabbit, chemotic, and the cornea is nearly always involved in these animals. On the third or fourth day the inflammation begins to recede, and after three or four weeks there remains perhaps a slight opacity of the cornea, and some injection of the conjunctiva; but this condition will vary according to the strength of the infusion and the susceptibility of the animal. This is what generally obtains after a single application of the infusion in the rabbit."—*Medical Press and Circular*, September 3, 1884.

History and Use of Aveloz Milk.—Aveloz (the vulgar name of an Euphorbiaceous plant of the Philantros tribe) is found in the interior of the province of Pernambuco and south of Parahyba. It grows in the fissures of stones, where animal manure and dry leaves accumulate. There are three distinct qualities, bearing the vulgar names of male aveloz, female aveloz, and wild aveloz. From our observation, the wild, the sap or milk of which is sweet, is exceedingly digestive; the male is highly caustic; and the female (*Euphorbiacea philantros*) seems to us to be less digestive than the wild, and less caustic than the male; it is the kind which has been most used; meanwhile we have used all the three kinds. and always with good results. During the summer the aveloz milk contains three-fourths of water of vegetation; during the winter it contains five-sixths. The application (use) of pure milk is very uncertain in its results, because the digestive qualities are much reduced, as, from our observation, we are led to believe that the cure of cancer depends on the digestive qualities suspended in the sap, and not on the caustic products contained in the vegetation water. We have obtained better results by concentrating the aveloz milk until we get to the solid state; we then "dose it," dissolving it in white vaseline The advantages obtained from the application (use) of this formula are numerous—(1) the knowing of the quantity of extractive principle employed; (2) the being able to apply a larger quantity, which is not the case with pure milk, owing to its being too liquid; (3) the facility of application to a spot without touching the places in course of cicatrization; (4) the complete absence of the irritating action of the milk, which is highly caustic; (5) the being able to "dose" it for the granulations and ulcerations of the neck of the womb without attacking the vagina, which could never be done with the pure milk; (6) the alleviation of pain in all cases.

APPLICATION (USE).

This remedy is applied with a smooth pencil. If the wound is large and not cancerous, a very fine layer is applied every second or third day as required; but if the patient does not experience intense pain, it may be applied every twenty-four hours, having previously washed it well with phenicated water and thoroughly dried it. When the wound shows hæmorrhage it is necessary to dilute the application. Ordinarily the cicatrization appears at once; in that case the remedy is to be applied when required—that is, when it is noticeable from observation that the progress of cicatrization has become stationary. Such applications should be then made very carefully, limiting them to the spot which it is intended to destroy, to the intent that no sound tissue may be destroyed, as often happens.

In cancroids and epithelioms the hæmorrhage becomes, after ten or twelve daily applications, very active; in that case the application may be delayed for two or three days, washing, however, the wounds once or twice a day, drying it up well, and keeping one of Lister's protecting phenicated gauzes. If cicatrization arises, proceed as directed, keeping the gauze always over the wound, and if it allows of the antiseptic apparatus (when cicatrization begins), it becomes more complete.

In ulcerated sarcomas, specially in those of the chest, we have no complete observation; but of eight patients of whom we took charge five months ago, one is almost cured, because the large wound has already cicatrized, and there remain small tubercles only round the nipple, which are getting easily destroyed by the application of the remedy by which we provoke suppuration.

It should be observed that in cancer in the breast hæmorrhage is more frequent in the beginning of the treatment than at the end; that is why we followed this practice—viz., to attack all parts of the wound energetically, spreading the remedy with a soft pencil, leaving it exposed to the air for one or two hours, and covering it then with a large quantity of lint to absorb the secretion of the liquids which flow from the wounds prolusely. It must be borne in mind that these liquids destroy the sound part where they lie. At the end of fifty or sixty days, if there were ganglions in the axilla or near the tumor, and they are already modified or have disappeared entirely, cicatrization begins then, as a rule; if so, the applications are then suspended, and Lister's antiseptic apparatus is made use of. It is always better to attack the cancer before it becomes ulcerated, whatever its nature may be.

We have the observation of a melanoid of the point of the nose having been radically cured in four months, and of an erectile tumor of the external chamber radically cured in twenty days; be it observed that this tumor had been already twice extirpated by applications of aqua regia.

The use of this remedy is so new and so little known to science that it has only become generally known during the last five months, after we studied the preservation of the milk for export. But it has been used for many years past, from a distant time, in the centre of this province as a cure for papiloms and keloid tumors; it has never become general, as, we believe, owing not only to the excessive pain, but also to the difficulty in transporting the milk free from fermentation. Twenty years ago some samples of aveloz milk for the cure of cancers came to this city, but on arrival were found decomposed; the doctors themselves attached no importance to the news. Two or three years ago, however, Dr. Joaquim Guines, who was suffering from an epitheliom in the face, having heard that in the city of Brejo da Madre de Deus the public notary had been cured of a similar complaint by using as a remedy the milk of aveloz, went to that city, and in a short time he was, by using the same treatment, radically cured. This induced Dr. Joas Baptista Gitirana Costa, municipal judge in that district, to take into consideration and introduce in this city the real milk of aveloz, which, having arrived here, coagulated; and, he having consulted us, we succeeded in dissolving it, and in distributing it gratuitously among persons of all classes undertaking to treat the poor people gratuitously. We have by this means been able to collect the observations of which I speak above, which will be shortly published.—Numa Pampilio, surgeon dentist to the Pedro II. hospital, in *Chemist and Druggist*.

Treatment of Night Sweats in Phthisis—Having watched a number of phthisical patients during the last six months at the above hospital, I wish to state my experience of some of the drugs there used, and their power of alleviating this very common symptom—a symptom that it is very important to reduce as much as possible. These reports are from many cases, but especially seventeen cases on which daily reports were taken during their stay of many weeks in the hospital. These seventeen cases were under Dr. S. West, and I would here thank him for his kind assistance. The importance of nutrition in phthisis is admitted, and the fortnightly weighing-day is all-important for prognostic purposes, as without doubt night-sweats favor wasting. Patients will have a better chance of improving their nutrition if this extra drain can be stopped; and surely night-sweats and consequent damp clothes must add to the risks of fresh chills, besides making patients miserable and uncomfortable, and spoiling their night's rest. It is right, therefore, to prevent sweating if possible, although some physicians do not admit this, considering it useful in reducing the temperature; but that the hectic temperature is not due to the sweating is proved by the fact that the same character of temperature is maintained after the sweats have ceased under treatment, or even in some cases the temperature chart has markedly improved. It is well-known what great power atropia has over night-sweats, and it is the object of these notes to contrast

with this drug some others used at Victoria-park Hospital—namely, strychnia, nitrate of pilocarpine, and oxide of zinc. Strychnia was first recommended by Dr. Lauder Brunton in the St. Bartholomew's Hospital Reports, 1879, from five to thirty minims of tincture of nux vomica having been given in four cases with success. At Victoria-park Hospital, from six to twelve minims of strychnia solution were prescribed as a night draught in many cases, and it suceeded admirably in most of them. The full dose of twelve minims was seldom necessary, but no ill effects or discomfort was noticed from so large a dose. Some of the patients slept very much better during the exhibition of the strychnia, to which gratifying result the increased comfort of the patient from absence of damp clothes may in some measure have conduced; but I think the drug had a good deal to do with the increased sleep, as this was not noticed in other cases in which the sweats were prevented by other drugs; in one case it markedly lessened the cough. Nitrate of pilocarpine was also given as a night draught, in doses varying from one-twentieth to one-eightieth of a grain, one-twelfth of a grain being the most usual dose; in the majority of the large number of cases in which it was given the result was good, the patients being most grateful for the relief from the sweating. It seldom produced any of its physiological action, and, even if it did so, it was very slight sweating for half an hour after the draught, except in one case. One morning note only was as follows: "Sweated copiously for an hour after the draught;" but in this case, as in the others, there was no more sweating for the rest of the night. In a few cases in which the night-sweats had commenced before the administration of the night draught, the sweating quickly terminated. Occasionally the action of the draught was not of long enough duration; for if given at 9:00 P. M. sweating would commence about 4:00 A. M. next morning. It is well in these cases to repeat the draught in the middle of the night. Oxide of zinc, in doses of from five to ten grains, was fairly successful in a few cases tried with it. In one case it was very successful indeed, as on discontinuing the drug the sweats recurred, to be again controlled by the same drug. It is necessary to state with regard to strychnia, and also pilocarpine, that their full action may not be developed the first night; also that the action of the drug lasts more than the one night; so that it is possible to discontinue the draught and yet no sweating occur for a few nights. In some cases even the habit of the sweat-centre seemed permanently altered by the drug, and thus no more sweating occurred during the remainder of the patient's stay in the hospital. The result was not always so satisfactory, for in some cases the drug seemed to loose its effect, and the sweating previously prevented would slowly return, even during the continuance of the draught; but a change of drug was always successful in these cases. The three drugs, strychnia, atropia, and pilocarpin, only failed completely in one case—a man with phthisis, with his left pleural cavity nearly full of pus. Thus we see that strychnia and pilocarpine can influence night-sweats. But are they better than atropia? No, not better. Are they as good? Probably yes. They are nearly as sure, and they are free from the great drawback of atropia—viz: the dryness of the throat produced, which is very troublesome in some cases, and certainly appears to increase the cough. Some patients seem very subject to this dryness of the throat, and it is in these cases that it is so useful to have other drugs to fall back upon. It is wise to prescribe the atropia in a fluid form, as the pill may not be digested by the stomach. Thus in one case atropia pill ($\frac{1}{50}$ gr.) had no effect, whilst two minims of the atropia solution ($\frac{1}{60}$ gr.) was very successful. Also atropia and morphia had better not be combined, as their antagonism seems to prevent good results; if the morphia is necessary, then prescribe another drug for the night-sweats.—John E. Howe, M. B., M. R. C S , in *Lancet*, September 6, 1884.

Preparation of Beef as a Nutriment.—For some time past innumerable preparations of beef have been put on the market, for the nourishment of the sick. With some observers the aim was to procure a food in as concentrated a form as possible; but they lost sight of the many other properties that are absolutely requisite if the article shall be perfect. In some cases all that is necessary is to stimultate the appetite, as in anæmia, while in others the digestive apparatus is so weakened and deranged that all articles of diet are rejected unless they are artificially digested previous to their introduction into the stomach. If all this has been accomplished, then the preparation must be palatable, for patients often have perverted tastes. French experimenters have given this subject considerable attention, both in the laboratory and clinically, with the result of stimulating others to make observations and more thoroughly develope the principles on which this subject is based.

Meniere has prepared a meat powder by cutting good beef into thin slices and then covering it with sugar, when they are subjected to heat, either artificial or natural. When sufficiently dry it is pulverized. It will keep for some time, and the patient will usually eat it with a relish, but not for any length of time, and, more than that, there is but little gained by administering beef in that manner. Another procedure was to subject fresh beef to pressure to obtain a pure beef juice. This can easily be accomplished; but, in the first place, the preparation will keep but a few days, and then it does not contain all the nutritive principles of the beef. Liebig's extract of beef is another preparation of about the same kind. They contain the more important salts of flesh, and give to soup a strong flavor of beef, but they do not represent the corresponding amount of beef from which they were prepared. The albuminous principles which are so desirable remain in the beef that is thrown away. Beef tea as generally made in every household and prescribed so often by physicians does not contain the necessary properties to properly nourish a sick person. Many times all other articles of diet are prohibited, and the result is that the patient who should receive a concentrated food, since his condition will not permit of digesting large quantities, is slowly starved to death. Dujardin-Beaumetz and Deboue employed a meat powder and forced the alimentation even though the individual was averse to taking food, by means of a tube which was introduced into the stomach through the œsophagus; but even if their result was good in a large majority of cases, the circumstances of this method are too complicated for the physician in private practice to carry out on his daily rounds. Simplicity is what is required. Guerder, of Paris, praises still another article of food, namely, desiccated bullock's blood. The nutritive properties of blood are generally conceded to be good, whether employed fresh or in a prepared state, but the taste is so objectionable that correctives must be invariably used for its administration, and then it causes nausea and vomiting far too frequently to become a popular remedy. It may be argued by some that when the dried blood produces nausea, it is not properly prepared; but even when prepared according to Guerder with the utmost care, vomiting and nausea often set in, in just such cases where an artificial or concentrated food is indicated, as is clearly demonstrated by G. He gave it in a number of cases; three out of this number rejected it absolutely, (typhoid fever convalescents) while in four cases it caused disturbance of the stomach, and in no case was the remedy administered for any great length of time. Physiologists have been using certain articles of diet by peptonizing them before they are injected into the stomach. Since then many articles have appeared in the market called peptones; but they all are deficient in some essential properties. The desideratum was to make an article to contain the largest percentage of peptones in such a form as not to destroy the natural odor of beef, make it palatable without the use of correctives, and put it up in such a manner that it will keep without losing

its properties, or becoming stale and nauseous. Such an article I think I can unhesitatingly say we possess in Dr. Rudisch's "sacro-peptones." It contains a larger amount of albuminoids and nutritive principles of beef than is found in any other food, and at the same time it is put up in such a form as to be agreeable to the most fastidious taste. It can be prepared in a number of ways. It dissolves readily in boiling water or it may be added to hot milk. In persons suffering from exhaustion it can be given on toast or stale bread, the patient taking it with a relish, not only for a few times, but for weeks at a time. I have never known it to cause nausea; and it contains every particle of the beef already digested. All that is required of the system is to absorb it.—C. W. Tangeman, M. D., in *The Medical World.*

Pharmacology.—The term pharmacology is one by no means easy of definition. To it is no longer assigned the old significance which it bore as a mere synonym of materia medica. It is the science of the action of remedies, and deals with the modifications produced in healthy conditions by the operation of substances capable of producing modification. It constitutes the chief basis for the application of remedies in disease, and is an important connecting link between materia medica on the one hand and the art of medicine on the other. The term therapeutics is familiar enough to the practical physician, and has for its object the treatment of disease. Authors are not agreed as to the limits to be assigned to the subject, for in its most extended sense it embraces all known methods of cure. Of late the combined subjects of pharmacology and therapeutics have assumed such importance in our educational course as almost to oust the old-fashioned materia medica. That the change is beneficial cannot for a moment be doubted. Materia medica was always an unpopular subject both with students and teachers, and it is difficult to see what benefit could accrue from learning by rote the botanical names and characters of a number of drugs which were seldom seen, and rarely or never prescribed. A knowledge of pharmacology or the physiological action of drugs, on the other hand, not only strengthens the intellectual faculties, but goes far to lay the foundation of a good practical knowledge of the treatment of disease. The change which has taken place in the teaching of the so-called materia medica is well illustrated by a comparison of the examination papers of to-day and of five years ago. The old-fashioned examiner in materia medica required the student to "give a list of the leaves in the Pharmacopœia," or asked him to enumerate the roots named in that publication, "with their differential characters." Such knowledge was "crammed up" slowly and laboriously, and was not of the slightest value when attained. The questions now asked, at all events at all the better-class examinations, are of an entirely different stamp. Here, for example, is one taken at random from the calendar of the University of Edinburgh: "Give an account of the physiological action of atropia both on man and the lower animals. Mention some of the alkaloids to which it is most closely allied, and some to which it is antagonistic. What substances applied typically dilate the pupil, and what contract it?" Questions such as these not only test the student's reading, but ensure the possession of a certain amount of knowledge, which cannot fail to be of the greatest value to him in his future career.

If further proofs were needed of the enormous strides made of late in this department of science, they might be found in the institution by the British Medical Association of a new section of pharmacology and therapeutics. It seems to be generally admitted that this section was the event of the meeting at Belfast. It was at one time thought that pharmacology would never be popular with the great bulk of the profession, but that such is not the case is shown by the fact that this special section was crowded during the whole meeting, even when other departments languished and were poorly attended. It must be admitted that the promoters of the section of pharmacology took a somewhat liberal view of the subjects included within its scope. Thus we find a debate on the British pharmacopœia and the patent medicine stamp act, culminating in the passing of several very practical resolutions; a discussion on antipyretics and the therapeutic uses of the oleates; a series of demonstrations on the action of various remedies on the frog's heart, and of instruments used in tapping the chest; and other features of equal interest. This may have been carrying matters rather far, but it must be admitted that if it were a fault, it was a fault on the right side. We do not see that the question of the repeal of the patent medicines stamp act could have been discussed equally well in any other section, and the absolute necessity for bringing the matter prominently before the profession cannot for one moment be doubted.

At the meetings of the British Pharmaceutical Conference, matters referring to pharmacology and therapeutics are often discussed incidentally, although necessarily the bulk of the work is devoted to pharmacy. The presidential address is always looked forward to with considerable interest; and that delivered by Mr. John Williams, of Hastings, on Tuesday last, was evidently listened to with especial pleasure. During the last two years we have had occasion more than once to comment favorably on the orations published by Professor Attfield in his presidential capacity. The year-book issued by the conference contains an authentic record of the progress of pharmacy during the preceding twelve months, and is of considerable use to original workers.

The part taken by the Lancet in the promotion of the science of pharmacology will not be forgotten. From time to time special articles on the subject appear in our pages, a course which has doubtless stimulated the British Medical Association to take the step above referred to; and there is hardly an original paper, either on the physiological action of drugs or their practical application to the treatment of disease, which has not received attention at our hands. Pharmacology has undoubtedly a brilliant future before it, and great credit is due to those who have devoted their time and energies to promoting and popularising the subject.—*Lancet*, August 16, 1884.

Suicide and Sleeplessness.—The Dean of Bangor was a man of considerable intellectual "power," which is the same thing as saying that he was constitutionally liable to intervals of mental depression. All highly intellectual men are exposed to this evil. A pendulum will always swing just as far in one direction as it does in the other. Great power of mind implies also great weakness under certain conditions. The marvel is not that great minds occasionally become deranged, but that they so often escape derangement. Sleeplessness means not merely unrest, but starvation of the brain. The brain cannot recuperate, or, in other words, it cannot rest. Physiologically, recuperation and rest are the same thing. Sleep is simply physiological rest. The only cause for regret in these cases is that the blunder should ever be committed of supposing that a stupefying drug which throws the brain into a condition of mimics and burlesque sleep, can do good. It is deceptive to give narcotics in a case of this type. The stupor simply masks the danger. Better far let the insomnious patient exhaust himself than stupefy him. Chloral, bromide, and the rest of the poisons that produce a semblance of sleep, are so many snares in such cases. Sleeplessness is a malady of the most formidable character, but it is not to be treated by intoxicating the organ upon which the stress of the trouble falls. Suicide, which occurs at

the very outset of derangement, and is apt to appear a sane act, is the logical issue of failure of nutrition that results from want of sleep. It is curious to note how a sleepless patient will set to work with all the calmness and forethought of intelligent sanity to compass his death. He is not insane in any technical sense. He has no delusion. He does not act, or suppose himself to act, under an "influence." He simply wants to die, and, perhaps, not until after he has made an attempt to kill himself, will he exhibit any of the formulated symptoms of mental disease. —*Lancet*

Therapeutic Use of Cotoine and Paracotoine.—The cortex of cotton plant has been used in diarrhœa. Since it does not possess any astringent property, its utility was attributed to its antiseptic action, by diminishing the formation of irritating products in the intestines. Prof. Albertoni has examined the effect of the alcoloides of cotton, and found that they diminish putrefaction and impede the production of bacteria.

Cotoine dilates the arteries, facilitates venous circulation and augments the vitality of the intestines, as well as of the kidneys. Injected into the jugular vein, it produces active hyperæmia in the intestines, does not change the circulation in the submaxillary gland, increases the temperature in the peritoneal cavity. Opium and chloral dilate also the intestinal vessels, but they exert a paralytic action, which cotoine does not. The action of paracotoine is about the same, but not so decisive.

The cortex of cotton is used in form of powder or tincture in divers varieties of diarrhœa, in typhoid fever, in intestinal catarrh, in phthisis, especially useful in diarrhœa of the insane, prior to the period of general paralysis. It is negative in diarrhœa of torpors, or in that depending upon obstruction of the portal veins. In diarrhœa of pellagra it will succeed, when aught else has tailed, when it must be given in large doses. The powder can be given in wafers or in some mucilage: ℞ Cotoine 40 centigr. Bi-carbonate of soda, 1 gramme. Water, 100 gram. Glycerin, 20 gram. This mixture must be warmed else Cotoine will not be completely dissolved.

Excellent results can be obtained by a combination of Cotoine with Subnitrate of Bismuth.—*Paris Medical & Archiv. für exper. Pathologie & Pharmacolog., St. Louis Med. and Surg. Journal.*

Sulphate of Quinine in Scarlatina.—Rev. Mens. des Mal. de l'E. (from Jour. de Méd. de Paris), Sept. 1884:

In the development of scarlet fever it is noticeable that the fever follows a regular course, with exacerbations which recur periodically. Paying attention to these intermissions, and administering sulphate of quinine from the beginning, it was observed by Dr. Diberder that the intensity of the fever was lessened, and the recurrences were retarded, until the eruption had almost disappeared. Each recurrence attended or called forth renewed activity in the development of the eruption, the last recurrence being the most marked one. It is without danger, however, if the quinine has been given in suitable doses. In severe cases of the disease it is believed that quinine lessens their gravity. The accidents which follow scarlatina are due to a retention of the poisonous principle in the blood, which acts similarly to the poisonous principle in malarial fever. The difference between them consists in the rapid progress of the scarlatinal elements. Quinine given as a preventive is a most effective means for this purpose, or for combating them when they have already appeared. The author believes that he is the first who has published a recommendation of the use of quinine in this disease. In severe cases he recommends the daily use of a gramme of the sulphate of quinine, for two or three days, or until the exacerbations have ceased.—*Archives of Pœdiatrics*, Oct. 1884.

The Rational Treatment of Chorea.—Jour. of Neurology and Psychiatry, May:

Six years ago Dr. Van Bibber read a paper before the Medical and Chirurgical Faculty of Maryland upon a treatment of chorea. From that time it has been unnoticed either adversely or favorably. Having seen eighty-six cases of this disease within a year and the treatment then suggested having been successfully carried out, including many cases which were becoming worse under the usual remedies, he submits a report of them. The treatment consists in putting the patient to bed, putting the muscles in the best position for rest and avoidance of those sources of irritation which would cause them to contract and produce that condition which it is desired to cure. Massage is to be thoroughly used three times a day. Massage will quiet the restlessness, which comes on in the afternoon, sooner and more permanently than any other means. All unnecessary talking is to be avoided. Diet to be nourishing and abundant. The usual remedies can be given in addition, the patient being in the best possible condition to be favorably affected by them. The confinement to bed seldom extends over a month.—*Archives of Pœdiatrics*, October, 1884.

The Use of Iodoform in the Treatment of Phthisis.—After a short review of the history of iodoform as a drug for internal administration, Dr. R. Shingleton Smith, of Bristol, gave an analysis of the results of treatment in forty-six cases, arranged in tables to show the variation in weight before and after treatment: in twenty-nine out of the forty-six cases, there was an absolute gain in body-weight, amounting in one case to thirty-two pounds, and in another to thirty-three pounds. Other indications of improvement were fall of temperature, diminution of cough and expectoration, cessation of night-sweats, improved appetite. The drug was given in doses varying from one to six grains five times daily, and was continued for several months. Toxic symptoms of a mild character had been observed in some of the cases. The paper concluded with a reference to the local use of iodoform in tuberculous disease of the larynx.—From *Medical News*, (Sept. 6, 1884), report of 8th International Medical Congress.